ENGIN STORAGE

Registered at the General Post Office as a Newspaper.

LIBRARY
MAR 26 191
UNIVERSITY OF TORONTO

THE South African MINING JOURNAL

WITH WHICH IS INCORPORATED
"The South African Mines, Commerce & Industries."

ESTABLISHED 1891. PUBLISHED EVERY SATURDAY

VOL. XXII., PART I., No. 1117.] JOHANNESBURG, TRANSVAAL, SATURDAY, FEB. 22, 1913. [WEEKLY, PRICE 6D.

A New Development In Lubrication.

SAVE YOUR OIL AND YOUR MACHINERY.

IMPORTANT TO ENGINEERS.

EMINENT ENGINEERS have long agreed that a Graphite soluble in Oil would make the ideal Lubricant. Up till now, however, the use of Graphite has been limited by the impossibility of suspending it in any liquid. This difficulty has now been removed and we are able, by a new process, to permanently suspend in oil a Graphite absolutely free from grit. The advantages to be gained from a Graphite Lubricating Oil of this description, every drop of which is impregnated with solid lubricating matter, can easily be understood :—

Will show a saving of 75% in Oil, and give a more efficient Lubrication.
Will put a fine skin on any rubbing surface, reducing friction to a minimum.
Will give entire freedom from hot bearings.
Is unaffected by the highest temperature.
Is adhesive—consequently there is no waste.
Is applicable to any class of Engine.
Can be fed through any type of Lubricator.
Increases the effective Horse Power by decreasing friction.
It is not an expensive Oil.

SELCRAIG GRAPHITE ENGINE OIL.
SELCRAIG GRAPHITE LUBRICATING OIL.
SELCRAIG GRAPHITE GAS ENGINE OIL.
SELCRAIG GRAPHITE CYLINDER OIL, No. 1.
SELCRAIG GRAPHITE CYLINDER OIL, No. 2.
SELCRAIG GRAPHITE MOTOR OIL.
SELCRAIG GRAPHITE PAINT FOR ALL PURPOSES.
SELCRAIG GRAPHITE PASTE.
SELCRAIG FINEST GRAPHITE POWDER FOR COMPRESSORS, ETC.

For full particulars apply to

SELCRAIGS (Colonial) LIMITED,

GOLDREICH BUILDINGS, Corner of Commissioner and Joubert Streets, facing Carlton Hotel. Entrance : JOUBERT STREET,

Phone 3720. **P.O. Box 1187.** JOHANNESBURG.

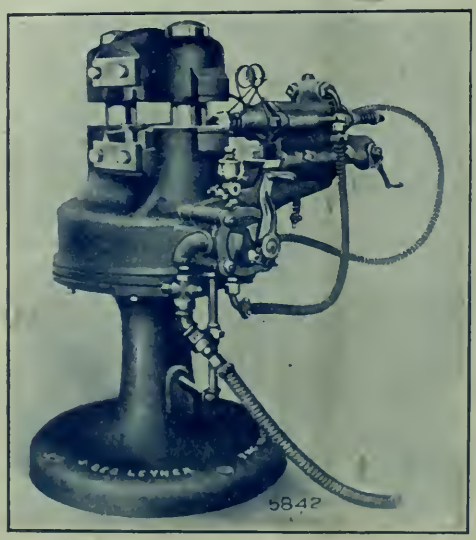
GLASGOW OFFICE : 11, WEST REGENT STREET.

Drill Sharpeners

Up-to-date mining men know that a thoroughly effective drill sharpener is a primary essential to rock drilling economy. And the Leyner Sharpener, IR Model 5, is the machine that meets their need.

The Leyner makes bits that must be right—cannot make bits that are not right—right as to gauge, alignment, thickness of wings, shape of cutting edge, quality of metal, relation of edges to one another. And it shanks as well as sharpens.

Samples of Work done with LEYNER SHARPENER



I-R MODEL 5 SHARPENER.

Samples of Work done with LEYNER SHARPENER.

A single lever controls every operation. The skill—or otherwise—of the operator may affect the rate of output but never the quality of the sharpening.

Leyner-sharpened bits are perfect bits. Used in Ingersoll-Rand Drills, they mean the utmost drilling speed and economy.

NOTE—Machines of this type are in successful operation on the Witwatersrand.

JOHANNESBURG **INGERSOLL-RAND CO.** LONDON

Start the New Year right, and remember when ordering

Air Feed Hammer Drills

that the recollection of quality remains long after the price is forgotten.

OUR NEW MODEL

No. 12C WAUGH DRILL

is the Fastest Drilling, Most Efficient Hammer Drill on the Market.

We guarantee it to be so, because in every particular it is made up to a standard; and not down to a price.

Let us give You a Demonstration.

THE DENVER ROCK DRILL & MACHINERY COMPANY, LTD.,

1st Floor, Royal Chambers, corner of Fox and Simmonds Streets,

JOHANNESBURG.

P.O. BOX 2367. CABLES & TELEGRAMS: "GYNETH." TELEPHONE 1426.

Union Castle Line.

Sailings between SOUTH AFRICA and the UNITED KINGDOM by the Western Route (via Madeira and the Canary Islands), and by the Eastern Route (via Suez).

ROYAL MAIL STEAMERS sail homewards from Durban every Thursday, and from Capetown every Wednesday afternoon, calling at Madeira.

INTERMEDIATE STEAMERS are despatched each week for England (via Las Palmas or Teneriffe) taking passengers at lower rates than by the Mail Steamers. Calls are made at Lobito Bay, St. Helena and Ascension at stated intervals.

EAST COAST SERVICE.—Monthly sailings homewards via East Coast Ports and the Suez Canal, calling at Delagoa Bay, Beira, Chinde, Mozambique, Port Amelia, Zanzibar, Mombasa (Xilindini), Aden, Port Sudan, Suez, Port Said, Naples, Marseilles, and Gibraltar for London. This service both outwards and homewards connects at Natal with the Mail Service via the Western Route. Passengers embarking at Durban and proceeding overland from Marseilles to England, can effect the journey in about 30 days.

MAURITIUS SERVICE.—Sailings every four weeks.

THROUGH BOOKINGS are arranged to American and Continental ports.

OUTWARD PASSAGES of friends in the United Kingdom and the Continents of Europe and America, may be prepaid in South Africa.

CIRCULAR RAILWAY & STEAMSHIP COMBINED TICKETS (in South Africa) are issued throughout the year at greatly reduced rates.

For full particulars of Freight and Passage Money apply to the Agencies of the

UNION-CASTLE MAIL STEAMSHIP COMPANY, LTD.,

At Capetown, Port Elizabeth, East London, Durban, Lourenco Marques, and Johannesburg, or to the Sub-Agents in the Principal Towns.

EIGHT BUTTERS' FILTER PLANTS

OPERATING ON THE RAND

Have Proved that

THE BUTTERS' PROCESS INCREASES PROFITS with the result that THREE MORE Large Plants are under construction, viz.:

Randfontein Central G.M. Co., Ltd., Pumping Plant	for 1,500 tons per day.
Van Ryn Deep, Ltd., Gravity Plant	„ 900 „ „
Geduld Proprietary Mines, Pumping Plant	„ 500 „ „
Shamva Mines, Ltd., Rhodesia, Gravity Plant	„ 1,000 „ „

CHAS. BUTTERS & CO., LTD.

(Incorporated in England.)

187 EXPLORATION BUILDINGS, JOHANNESBURG.

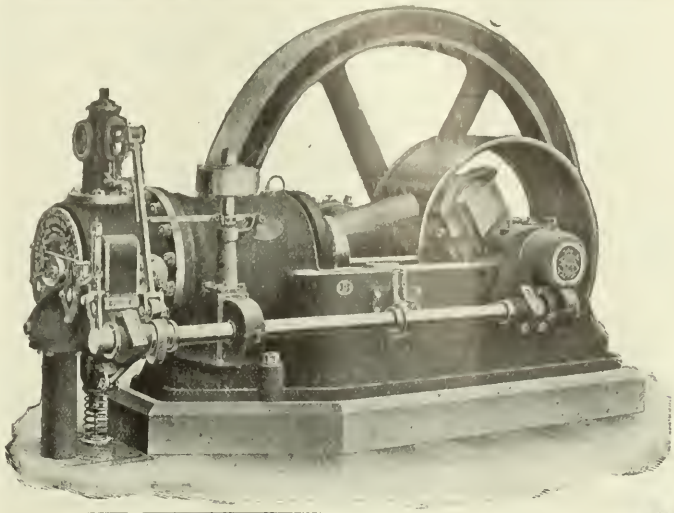
P.O. Box 2653. Telephone 3701.

SOLE AGENTS FOR SOUTH AFRICA:

FRASER & CHALMERS, LTD.,

5th FLOOR, CORNER HOUSE.

OUR GAS ENGINES are Simple, Reliable and Efficient, and are made of highest grade Materials. All VALVES, CAMS, Etc. are in Special ALLOY STEELS.



PATENT THROTTLE-GOVERNED GAS ENGINE.
Built in all sizes from 10 to 150 B.H.P.
Also Suction Gas Producers.

A Study in Design, Materials and Construction.

Built Exclusively By:— **AMBROSE SHARDLOW & Co., Ltd.,**

FIRST-CLASS AGENTS WANTED.
Cables: "AMBROSIA."

SHEFFIELD, ENGLAND.

Catalogues may be had on application at the Offices of this Journal.

ERNEST NEWELL & CO., LTD.,
MISTERTON,
GAINSBORO, ENGLAND.

CODES: A.B.C. 5th EDITION. WESTERN UNION. ENGINEERING 2nd EDITION.

CABLE ADDRESS: NEWELLS, MISTERTON, GAINSBORO.

22' 0" x 5' 6" WET TUBE MILL.

SPECIFICATION. Welded or Rivetted Mild Steel Tube, Cast Iron or Cast Steel Covers, Machine Moulded or Cut Cast Iron or Cast Steel Gearing. Substantial Trunnion Bearings, Lined White Metal, Steel Pinion Shaft with Fast and Loose Pulleys or Friction Clutch in place of Loose Pulley. End Lining Plates of Iron or Steel, Silex or Iron Body Lining Plates, Feeds of Various Description.

CEMENT PLANTS. GYRATORY CRUSHERS. BALL MILLS.

AGENTS: BELLAMY & LAMBIE, P.O. Box 453.
CONSOLIDATED BUILDINGS, JOHANNESBURG.

PROFESSIONAL DIRECTORY.

LITTLEJOHN & WHITBY,

ASSAYERS TO THE
AFRICAN BANKING CORPORATION,
NATIONAL AND NATAL BANKS

CONSULTING ANALYTICAL
CHEMISTS AND METALLURGISTS,

P.O. Box 849. 'Phone 1633.

Offices and Laboratories:

10, SIMMONDS STREET, JOHANNESBURG.

Assays and Analyses of all Minerals, Drugs, Foods, Water, Milk, Oils, etc., undertaken.

Experiments conducted. Reports made as to treatment of any class of Ore.

PATENTS AND TRADE MARKS.

D. M. KISCH & CO.,

ESTABLISHED 1874.

Members Chartered Inst. of Patent Agents, London.

COLONIAL AND FOREIGN PATENT AGENTS.

The Firm undertake the Patenting of Inventions, and the Registration of Trade Marks throughout the world; the Preparation, Revision or Amendment of Specifications and Drawings; reporting on Validity and Infringements; obtaining copies of Specifications and Drawings of Patents granted; Searches through the Patent Office Records; the conduct of Oppositions, and all other matters relating to Patents and Trade Marks.

HEAD OFFICE:
No. 16 TO 19A, NATIONAL MUTUAL BUILDING,
CORNER OF RISSIK AND MARKET STREETS.

P.O. Box 668. TELEPHONE No 774.

And at Church Square, Pretoria. P.O. Box 217. Telephone No. 80.

POSTAL ADDRESS—BOX 1328. TEL. ADDRESS—"KINGOLI."

OLIVER KING,

CONSULTING MINING ENGINEER,

111, *Cullinan Building, Johannesburg.*

CODE—BEDFORD McNEILL.

THE
BULAWAYO ASSAY OFFICE AND PUBLIC LABORATORY,
(ESTABLISHED 1895.)

GEO. A. PINGSTONE, F.C.S., &c.,

ANALYTICAL AND
CONSULTING CHEMIST,

Assayer to the Bank of Africa, Limited, and the African Banking Corporation, Limited. Analyst to the Bulawayo Municipal Council, etc.

Ores, Bullion, Waters, Cyanide Extraction Tests, and Metallurgical and General Analytical Work of all kinds.

Goldfields Buildings, Main Street, BULAWAYO.
P.O. BOX 445.

A. HEYMANN, M.Ch., M.Ph., M.A.,

ANALYTICAL AND CONSULTING
CHEMIST AND METALLURGIST.

By Appointment:
Analyst and Assayer to the Transvaal Government.
(Gov. Not. No. 744, '09.)

Analyses and Assays of all descriptions undertaken. Technical Industries, Water Purifiers, Septic Plants, etc., supervised and reported on.

Laboratories and Assay Office:
FOX STREET, NEXT TO EXPLORATION BUILDINGS.

P.O. BOX 3427. TELEPHONE No. 15.
TEL. ADDRESS: "URANIUM," JOHANNESBURG.

JOHN LYSAGHT
LIMITED, BRISTOL,

ENGINEERS and Manufacturers of all Classes of

Constructional Iron and Steel Work.

Steel Buildings of all descriptions, Bridges, Girders, Cyanide Vats, Roof Trusses, Steel Headgears, Steel Chimneys and Flues, etc., etc. Timber-framed Galvanized Iron Buildings, Bungalows, Hospitals, Churches, etc., etc.

Special Designs and Prices submitted for all classes of Work on application to

BAERECKE & KLEUDGEN.

307 to 314, Consolidated Building 3rd Floor,
P.O. Box 1164. JOHANNESBURG. Phones 2645 & 2646.

MARTIN BUDD,

Landing, Shipping and Forwarding Agent,
DELAGOA BAY.

P.O. Box 90 Telegraphic Address: "BUDD."
Codes: A.B.C., A.1., Watkins & Scott's.

TELEPHONE 217 BOX 2127.

GEORGE McINNES, B.Sc.,

Importer of Electrical Supplies for the Trade.

Sole Agent for the "IKCONIA" Metal Filament Lamp.

MARSHALL SQUARE, JOHANNESBURG.
ESTABLISHED 1892.

IMPERIAL GAS, OIL and SPIRIT ENGINES.

GIVING COMPLETE SATISFACTION IN

33

DIFFERENT COUNTRIES.

Principal Showrooms :

LONDON - - - - - - 97d, Queen Victoria Street.
PARIS - - - - - - - 94, Avenue Parmentier.
BRUSSELS - - - - - 30, Boulevard Emile Bockstael.

WELL WORTH YOUR INSPECTION.

Please write for Illustrated Booklets.

Inventors and Manufacturers :

KEIGHLEY GAS & OIL ENGINE CO., LD

IMPERIAL WORKS, KEIGHLEY.

COMFORT and ECONOMY

In Ocean Travel.

RENNIE LINE.

Sailings :

DURBAN to LONDON Fortnightly *(Via Capetown).*

LONDON to DURBAN every Ten Days.

Ingoma	**Intombi.**
Intaba.	**Inkonka.**
Inanda.	**Insizwa.**
Inkosi.	**Ingeli.**

Apply :

Johannesburg.. PARKER, WOOD & CO.
Durban .. .. JOHN T. RENNIE & SONS.
London .. .. JOHN T. RENNIE, SONS & CO.,
East India Avenue, E.C.

SPECIAL WAGONS FOR MINES.

RAILS. SLEEPERS.

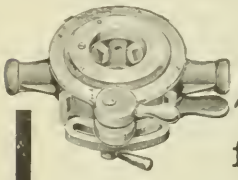
LOCOMOTIVES.

BEST SOURCE OF SUPPLY

FOR ALL KINDS

Of Material for Light - Railways.

AGENTS WANTED.



Pipe Threading.

The right tool for every purpose.

No matter where you need a pipe-threading tool and no matter for what purpose you use it, you will find the right tool for your particular use among the celebrated

OSTER PIPE-THREADING TOOLS

Hand Power Motor.

From the splendid "Bulldog" hand-operated Die Stock (⅛ in. to 4 inches) to our No. 308 A, driven by belt or by electric motor, with a capacity for 8 inch pipe, each tool is made as simple, durable, and mechanically perfect as 20 years of experience can make them. Engineers in every civilized country know the Oster line.

Write for details to our South African Agents:

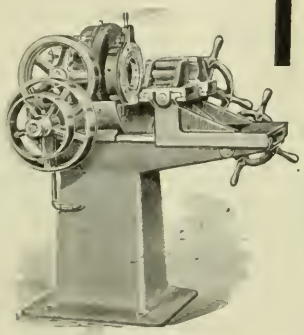
BARTLE & COMPANY,

Johannesburg,

SOUTH AFRICA.

or

The OSTER MFG. CO.,
Cleveland, Ohio, U.S.A.



P. & B. Paint

A Great Gold Getter.

Ordinary Lead and Oil Paints are powerless to resist Acids, etc. P. & B. Paint resists Acids, Fumes, Alkalies, Moisture, and is not affected by thermal or climatic conditions.

It spreads easily and dries rapidly, leaving a good coating which acts as a preservative as well as a resistant.

It is invaluable for coating 'Cyanide Vats, and Filter Presses, also for making cold water joints.

Owing to its great merit and popularity, it has been more widely imitated than any preservative paint ever placed on the market.

Ask for Sample.

Hirsch, Loubser & Co., Ltd.

Sole Agents,

P.O. Box 1191. JOHANNESBURG.

TRADE DICK'S ORIGINAL BALATA GUTTA PERCHA & CANVAS BELTING MARK

DICK'S BELTING.

No Belt is a———

DICK'S ORIGINAL BALATA

unless stamped every few feet with the Trade Mark.

FACTORIES: GLASGOW, SCOTLAND.
PASSAIC, NEW JERSEY, U.S.A.

SOLE AGENT

S. P. Ruthven,

8, WINCHESTER HOUSE,

JOHANNESBURG.

BOX 3013. TELEGRAMS "BELTINO."

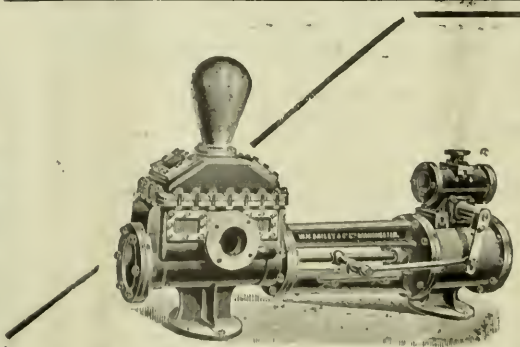


Fig. 50d.—"Davidson Economical Boiler Feed Pump

Fig. 10.—"Davidson" Boiler Feed Pump. For any Pressure with Pistons or Rams.

BAILEY'S "DAVIDSON" PATENT

STEAM PUMP

OF HIGHEST ECONOMY.
HOLDS THE RECORD FOR DURABILITY.

Uses 50 per cent. less Steam than Ordinary Pumps. Absolutely Positive in Action. Horizontal or Vertical.

The Pump with the simplest Slide Valve!

For Air Lift Pumping Plants, Deep Well Pumps, Steam Traps, Valves, Recorders, Turnstiles, etc., see Special Lists

MANUFACTURERS

W. H. Bailey & Co., Ltd.,

ALBION WORKS.

Manchester, England.

WHB

Tel. Add.: "SWIVEL." Est. 1888.
Phones 1056 and 1057.
P.O. Box 545.

WRIGHT, BOAG & CO.

Specialists
IN
ENGINEERING
AND
FOUNDRY WORK.

Offices: Frederick Street.
Works: Frederick, Troye, Delver and Albert Streets.

P.O. Box 3960. Telephone No. 877.

BATTEN & EDGAR,

THE RAND BOILER, TANK AND IRON WORKS.

Steel Cyanide Tanks, Chimneys, Cones, Skips and all Mining Plate Work a speciality.

Works:
Anderson, Gold & Albert Streets,
CITY AND SUBURBAN.

AUSTRAL IRON WORKS

Engineers and Founders.

Special Metal for wearing plates for Tube Mill and Centrifugal Pumps.

CUT GEARS A SPECIALITY.

Sole Agents and Manufacturers of Crosse's Patent fine Grinding Mill.

E. W. TARRY & Co., Ltd.
Anderson and End Streets,
JOHANNESBURG.

'Phone 149. Box 1098. Tel. Add.: "AUSTRAL."

JUST BECAUSE

A Casting or Forging is Broken is no reason for throwing it away.

SEND IT TO US FOR REPAIR
BY OUR
OXY - ACETYLENE
WELDING PLANT.

We have Expert Operators, a Complete Equipment and turn out ...

First-Class Work.

South African General Electric Co.,
P.O. Box 1905. Telephone 4321.

Phone 1801. Box 2415, Johannesburg.

J. R. LAWRENCE,
No. 8, LONDON HOUSE, LOVEDAY STREET.
Sole Agent for SOUTHWARK MANUF. CO., Ltd., London.
Makers of the "Vi-Balata" Belt, the "Amber Tan," the "D.A.P.," the "Orient Belt," Raw Hide Belting, Conveyor Belting, Link Leather Belting, English Oak Tan Belting, N.M.T. Belt Laces, Raw Hide Packings, Hose, &c.
Sole Agent LONDON PHOSPHOR COPPER & BRONZE CO

Printing, Bookbinding, Account Books, Tracing Cloth, Tracing Paper, Drawing Paper, Ferro Prussiate, Ferro Gallic, Indian Inks, Rubber Stamps, Stationery of all descriptions, Draughtman's and Surveyor's Requisites.

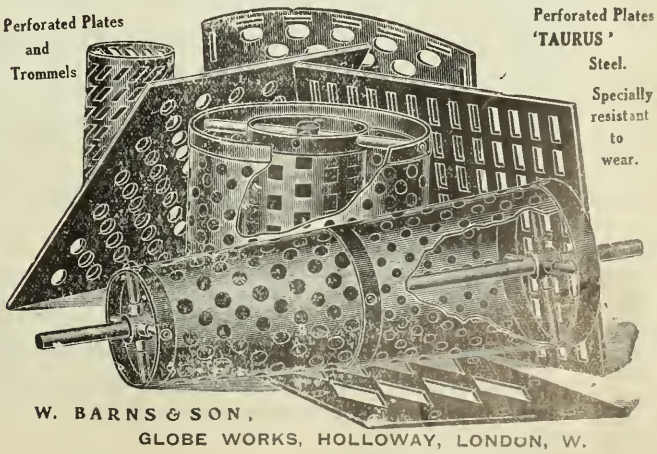
C. E. FOLKEY, Stationer & Printer.

Ask for a Quotation for Stationery or Printing.
7, MARSHALL SQUARE BLDGS., opposite main entrance Stock Exchangs.
TELEPHONE 2035.

CHAINS
FOR ALL MECHANICAL PURPOSES.
BAGSHAWE & Co. LTD.
DUNSTABLE, (ENGLAND).

Perforated Plates and Trommels

Perforated Plates 'TAURUS' Steel. Specially resistant to wear.



W. BARNS & SON,
GLOBE WORKS, HOLLOWAY, LONDON, W.

P.O. BOX 1553. Telegraphic Address: "AINSCO." TELEPHONE 356.

HERBERT AINSWORTH,

306-307, THE CORNER HOUSE (THIRD FLOOR), JOHANNESBURG.

CRANE NAVY VALVES

UNION BONNET
REGRINDING
TESTED TO 250 LBS.

FOR PRESSURES UP TO 175 LBS.
CAN BE PACKED WHEN OPEN.
CAN BE REGROUND WITHOUT DETACHING.

MADE IN
GLOBE, ANGLE & CHECK PATTERNS.

ROBEY & CO.

(SOUTH AFRICA), LTD., JOHANNESBURG.

WINDING ENGINES
STEAM AND ELECTRIC.

AIR COMPRESSORS
ROBEY (PATENT) AIR VALVES.

STEAM ENGINES
ROBEY (PATENT) DROP VALVE GEAR.

STAMP MILLS
AND ACCESSORIES.

CONCENTRATING MACHINERY.

WOODWORKING MACHINERY, &c., &c.

Large Stock kept of All Sizes. Quick Deliveries from the Works, England.

OFFICES—CORNER LOVEDAY & MARSHALL STREETS.
P.O. BOX 169. Telephone No. 44. Telegrams: "ROBIZ."

THE SOUTH AFRICAN

Mining Journal,

WITH WHICH IS INCORPORATED

South African Mines, Commerce and Industries.

ESTABLISHED 1891.

VOL. XXII., PART I.] FEBRUARY 22, 1913. [No. 1117.

HEAD OFFICE: 119-126, Exploration Buildings (3rd Floor).

Telephone **913.** P.O. Boxes **963** and **418.**

Cable and Telegraphic Address: **"MINING JOURNAL."**

LONDON EDITOR AND MANAGER FOR GREAT BRITAIN: Percy Snowden, 125 Salisbury House, London Wall, E.C.

GERMAN AGENTS: H. C. Wolff, Gerberstr, O. 11, Kempten, Bavaria; Rudolf Mosse, Jerusalemer Strasse, 46-49 Berlin, S.W., 19.

AMERICAN REPRESENTATIVES: Gotham Advertising Company, 95 Liberty Street, New York.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; South Africa (by post), £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Office as above.

NOTICE.—The postage of this issue of the *S.A. Mining Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.

	PAGE.
Notes and News	793
Topics of the Week:	
White Labour and Immigration	795
Recent Progress on Some Leading Rand Mines	796
The Van Ryn Deep	797
Expansion at Brakpan Mines	798
Views of the Van Ryn Deep	799
Some Resuscitated Mines?	800
Leeuwpoort Tin Mines	800
The Question of Development	801
Progress of the S.W. Transvaal Diamond Fields	802
The Manager and Staff of the Robinson Deep	803
The Chartered Company's Report	804
Position at the Rooiberg Mine	805
Progress in Ore Dressing	805
Continuous Decantation v. Filtration	807
Mining Men and Matters	806
Rhodesian Section:	
Latest Mining News	809
Correspondence and Discussion: "Labour and Diamonds," "The Miner as Critic"	810
The Week in the Sharemarket	811
Engineering Notes and News	813
Finance, Commerce and Industries	815
Automobile Notes	816
Index to Advertisers.	

Notes and News.

New Colliery Equipment.

The Vaalbank Coal Co., Ltd., now under the management of Mr. J. G. Howard, formerly manager of the Transvaal and Delagoa Bay Collieries, evidently intends entering the productive arena at an early date. The property of this company is situated near Uitkyk Station, in the Middelburg District of the Transvaal, and tenders are invited for the erection of steel screening plant, complete with tipplers, jiggers, elevators, picking belts, and conveyors, etc. There are also to be erected a steel headgear 65 ft. high, three Lancashire boilers, winding engine, steel smoke stock, etc. The entire plant in running order is to be handed over to the company on or before June 15th next.

* * * *

Gold in North-West Rhodesia.

Unlike Matabeleland and Mashonaland, North-Western Rhodesia hitherto has been exploited, in so far as minerals are concerned, only for base metals—for copper, lead and zinc. The attention bestowed on and capital absorbed by these properties has tended to divert attentions from the auriferous possibilities of North-Western Rhodesia. In Bulawayo it is now being recalled that the first prospectors who pegged out the huge base metal propositions of the North-Western territory also pegged off several gold reefs, and in one case a big quartz lode was traced for about a mile, giving pannings up to half an ounce. It would be somewhat strange if in a territory so vast and extensively mineralised a certain amount of payable gold is not found, and it is probable that under mining laws corresponding more closely to those in vogue in Southern Rhodesia the gold areas of Northern Rhodesia would engage a considerable amount of attention.

* * * *

Wages of Mozambique Natives.

A letter has been received by the Johannesburg Chamber of Commerce from the Department of Native Affairs, in which, after stating the principal points of the agreement between the Mozambique Government and the W.N.L.A., the Secretary for Native Affairs adds:—"So far as the new arrangement affects the mode or place of payment of wages, I have to state, for the information of your Chamber, that the Government are advised that their approval is not required by the terms of the Convention. There may, however, be a departure from the terms of the Convention in respect of the period of service on and after the 1st July, 1914, regarding which the Portuguese authorities will no doubt communicate with the Government in due course."

* * * *

To Facilitate Investment.

A little Bill introduced into the House of Assembly by the Minister of Finance, which is published, makes provision for the prompt payment of money due to British holders of South African Government securities, the object being to "facilitate the investment of trust and other funds in the United Kingdom in Government securities of the Union." The measure provides that whenever by the final order of any Court of competent jurisdiction in the United Kingdom any sum of money is adjudged payable in respect of any Union Government securities, the Minister of Finance "shall forthwith cause an equivalent sum to be paid out of the funds in the hands of the High Commissioner without any other appropriation than this Act."

* * * *

New Eland Diamonds.

At the first annual meeting of the New Eland Diamonds, Ltd., held last week, Mr. J. Mitchell, as chairman, reported that blue ground, of a soft nature, had been found at 108 feet, but no difficulty was anticipated in treating it with the existing plant. Labour is coming in more freely. A better water supply is being developed on the farm. The walls of the mine have not yet been defined, and the fissure, of an estimated area of 22 claims, is still

intact. The yield to date has been adversely affected by float rock in the upper levels. There are still considerable areas to be prospected. Two interim dividends of 10 per cent., making 20 per cent. for the year, were confirmed, and it is hoped not only to maintain the profits during the current year, but to increase them.

* * * *

New Heidelberg Roodepoort.

After a comparatively long life, dating from the 18th May, 1895, and after various vicissitudes, the New Heidelberg Roodepoort G.M. Co., a Barnato flotation, has been marked down for liquidation. At the adjourned meeting of shareholders, held the other day, Mr. John Munro explained that the company owed £149,000, and that the present creditors had called up their loan. The only course was liquidation, which proposal was agreed to with one dissentient.

* * * *

Two Small Company Meetings.

At the fourth ordinary general meeting of the South Deeps, Ltd., held last week, Mr. D. Christopherson presiding, the report and accounts were formally adopted, and Messrs. F. P. D. Chaplin, M.L.A., and W. S. Smits were re-elected as directors. At the ninth ordinary general meeting of the East Rietfontein Syndicate, Ltd., also held last week, Mr. D. Christopherson presiding, the chairman said that since the Consolidating Townships Bill had not been approved by Parliament, no further action had been taken by the Board in connection with their proposed land settlement scheme. The retiring directors, six in number, were re-elected, and the report and accounts unanimously adopted.

* * * *

The Coal Trust Question.

In the House of Assembly last week, Mr. Boydell asked the Prime Minister (1) whether his attention had been drawn to the existence of a South African Coal Trust; (2) whether it was a fact that the Government mail contractors had acquired a controlling influence in this trust; (3) whether he was aware that sea coal shipped at Union ports was quoted one shilling per ton cheaper in London than could be quoted by South African agents, and (3) whether he would take steps to protect the interests of the South African public by introducing legislation making such private trusts and monopolies illegal in South Africa. In reply the Prime Minister said: The Government understands that a combination of Natal coal owners has been formed recently controlling ten collieries with an output of about 150,000 tons a month with the idea of regulating the selling price for their coal. Five collieries with an output of about 75,000 tons a month remain outside this ring. In the Transvaal there is a coal owners' association which again acts independently of and has at present different interests from those of the Natal industry. The Government's information is that the mail contractors have acquired interests in two collieries which are not in the Natal combination. As regards the third part of the question, I have been informed that such is the case, but I do not anticipate that it is likely that London will be able to continue to quote this coal from Union ports cheaper than the agents. The Government does not anticipate the formation of any trust at the present time, but will watch events in the interests of the public.

* * * *

The Union's Total Capital Over 112 Millions.

The report of the Public Debt Commissioners for the year ended March 31, 1912, states that the gross public debt of the Union at that date amounted to £117,260,534, against which the following items may be looked upon as a set-off. Sinking funds, £5,780,246; Exchequer balances, £2,713,342. Investments as follows:—Land Banks (exclusive of reserve or protecting funds), £2,711,000; School loans (one-half), £561,721; local works loans, £176,842; irrigation loans, £391,368; fencing loans (partly estimated), £175,000; loans for sheep and cattle dipping, £59,599; repatriation advances, £1,660,602; Land settlement loans, £1,589,251; Crown land bonds (Cape), £755,983; other advances, £451,261. The capital of railways and harbours (exclusive of funds established to protect and maintain capital) is £92,303,952. Capital of telegraph and telephone system (including £350,000 for land and buildings paid from public works vote), £2,730,563. Total, £112,363,763. The report states that these figures are given with the object of showing that the public debt of the Union represented by what is known as "Deadweight debt" is comparatively small. In addition to the assets set out above, considerable revenues are derived from rents of properties acquired from both revenue and loan balances.

* * * *

Lomah (Rhodesia) Exploration.

The recent effort of the directors of the Lomah (Rhodesia) Exploration Company to raise further working capital by the creation of a series of convertible Debentures carrying 8 per cent. interest having met with insufficient response to justify the Board going to allotment, a reconstruction scheme has been drawn up. This is to be submitted to the shareholders at an extraordinary general meeting. It is proposed to form a new company with a capital of £75,000, in 300,000 shares of 5s. each, of which 299,993 shares credited with 3s. 6d. per share paid up are to be issued for the present company's undertaking. The liquidator is to offer 282,864 of the 299,993 shares to members of the present company at the rate of three new for one old, and the remaining 17,129 shares are to be sold and the proceeds distributed among the shareholders of the present company. It is officially announced that the subscription of 150,000 shares of the new company will be guaranteed upon the scheme being approved, thus providing a minimum of £11,250 cash capital.

* * * *

The Rand Wages Bill.

In view of some recent discussions relating to the employment of white labour upon the Rand, the following figures are of some interest. They represent the sums paid out in salaries and wages to white and black persons during the years mentioned, together with the value of the gold produced during the same period:—

Year.	Salaries. £	White Wages. £	Native Wages £	Total all classes. £	Value of Gold Produced. £
1907-8 ...	959,444	4,966,972	4,397,491	10,323,907	27,258,451
1908-9 ...	1,018,796	5,547,862	4,472,448	11,039,106	20,678,258
1909-10 ...	1,156,319	6,385,164	4,854,007	12,395,490	29,465,853
1911 ...	1,256,106	7.286,108	5,740,933	14,283,447	33,407,654

The figures show that while the value of the gold produced increased by 22·55 per cent. the various items of expenditure increased as follows:—

	Increase %.
Gold produced	22·55
Salaries	30·95
White wages	46·69
Native wages	30·55
Total salaries and wages	38·35

* * * *

South African Tins.

Having obtained further funds as a result of reconstruction, the directors of the South African Tins contemplate further additions to the plant.

* * * *

West Rand Unified.

Assays of check samples taken recently in the crosscut from the Penwith Shaft by Mr. J. M. Calderwood fail to confirm the high assays previously recorded from the same place. As we remarked last week, this is not a circumstance to be astonished at, considering the patchy and uncertain character of the Government Reef Series through which the crosscut in question has been driven, and upon which Mr. Kunst spent such a large sum in exploratory and development work. The Black Reef, which extends over a large portion of the West Rand Unified ground, appears to carry satisfactory values, and since there is already a 20-stamp mill upon the claims the company might recover the position somewhat by putting this ore through the mill.

For Advertising Purposes.

A bulletin recently issued by the United States Geological Survey includes the following explanations: "Recent advertisements of a South African Oil Company, prominently displayed in London and other papers throughout the British Islands, contain a flattering recommendation of the holdings of this company by an engineer, W. W. Van Ness, who is stated to be 'late of the United States Geological Survey.' Mr. Van Ness is unknown to the geologists of the United States Geological Survey, and so far as can be determined from the records, has never held any scientific or other appointment with that organisation. Another case that has come to the attention of the Washington office of Geological Survey is a statement regarding a mining man in one of the Central States who is quoted as having resigned his position to take leases on some of the mineral deposits discovered by him in the course of his work for the Government. The facts are that he was employed by one of the Survey geologists for fourteen days as a guide, and had no part in the examination of the mineral deposits mentioned other than to render assistance as one who was especially familiar with the localities that the geologist wished to visit."

* * * *

Rhodesian Progress.

The annual report of the Rhodesia Chamber of Mines, issued this week, shows that 34,654 natives are employed, which was fewer than in 1911 or 1910. The mortality was practically the same as for the previous year, namely, 33·5 per thousand per annum, of which 4·69 was due to accidents and 18·96 to pneumonia. In 1911 pneumonia was responsible for a death-rate of 17·01. The Rhodesia Native Labour Bureau recruited 14,928 natives, of whom 14,723 were distributed, the mines receiving 47·5 per cent., the farms 44·4 per cent., and "general" 8 per cent. On the subject of mining rights, after 1913, as certain clauses in the Mining Law affecting royalty and inspections due expire then, the Chamber has advocated the introduction of a simple system of profits tax in place of the existing sliding scale of royalty. The report indicates that negotiations were successfully held with the Union-Castle Company for cheaper bullion freight, and that a favourable opportunity is being awaited to approach the Rhodesian Railways with a similar proposal.

* * * *

A New Profession.

So many mining men are to-day either the owners of farms, or are contemplating a return to the land at some future date, that no apology is needed for drawing attention in these columns to the wisdom of securing the best expert advice on all questions relating to agriculture. Indeed, so patent is the need, that a new profession, that of agricultural adviser, has already justified its existence locally. We have received a circular from Mr. Stuart D. Webb, late of the Middelburg Agricultural College, in which he announces that he has started practising in Johannesburg as an adviser on agriculture and the agricultural industries generally. As a Consulting Agriculturist he will give his services for a moderate fee, and will specialise on advice to prospective purchasers of farms. He is prepared to examine and report upon farms of all descriptions, and to furnish detailed plans of working; to give advice on the choice of crops, stock, fertilisers, farm machinery and implements. To problems of irrigation and economic conservation of water he will devote special attention; and his study of these questions will enable him to give sound and valuable practical advice and assistance to those who wish to acquire farms. In addition, he has made a special study of ensilage and the planning of farm buildings on economical lines. In regard to these and similar matters relating to the business and science of agriculture, he will put his training and experience at the service of his clients, and will be glad to supply further particulars and to answer the queries of those who may be interested.

TOPICS OF THE WEEK.

WHITE LABOUR AND IMMIGRATION.

The debate on the white labour question in the Assembly this week evoked no new arguments, and did not advance the cause very much. Whether Sir Percy Fitzpatrick succeeds in getting his Commission appointed or Mr. Merriman gets his Select Committee, the net effect is likely to be the same. With the land, not with the mines, the future of the white man in this country lies. We have no intention of wearying readers by repeating here all the well-known, unanswerable arguments against interfering with the labour of the mining industry. The one way to find employment for whites is, of course, to throw the land open, by land-taxation and land expropriation, by breaking up the great estates and filling them with settlers from oversea, and by assisted immigration. The Union of South Africa has double the area of the German Empire, it is an excellent agricultural country, and there is hardly a product grown in the whole world that cannot be grown to profit in one or other of our four Provinces. Yet the German Empire supports 10,000,000 agriculturists, and we support under 200,000 white agriculturists, and a mere 2,000,000 of all colours. The Union could as easily support 20,000,000 as Germany can 10,000,000. There is room here for 5,000,000 more white agriculturists without the least difficulty. With 5,000,000 agriculturists at work, other industries would spring up of themselves. The native would be but a minor factor in the Labour question, and the white man would accept all manner of work in this country, as he does in every other part of the world. We note that in the speeches made by Sir Lionel Phillips and Sir Percy Fitzpatrick this aspect of the problem was rightly insisted upon. Quite a striking and timely confirmation of their testimony comes to us this week from a source as unexpected as the *Union Agricultural Journal*. In an interview with that organ, a well-known and successful American, who is citrus growing on a large scale in the Rustenburg district, gives his opinion on the outstanding evil in South Africa couched in no uncertain terms. Asked to compare progress in this country with that of America, he says: "There is absolutely no comparison. At the present moment South Africa is standing still so far as the farming industry is concerned. It is impossible for any country to go ahead without immigration. Immigration is the life-blood of all new countries, and if it is checked or discouraged the vital circulation of a nation soon ceases. In the Transvaal the Union Government owns over 20,000,000 acres of excellent farm land. But it is all locked up. In Rustenburg district alone there are nearly 1,000,000 acres of Government land. The Federal Government of the United States would immediately throw open these lands free to industrious settlers. Land settlement in America is never made a mere party question. It is a national question, and all legislation is based on the free farm, and a hearty welcome to the oversea immigrant. But Government land in this country is all tied up, and the Government is making no use of it. There are thousands of acres of Government land in South Africa which would produce magnificent crops of oranges, tobacco, cotton, and fibre plants. The United States Government would immediately cut up this land into quarter-sections (160 acres), half-sections (320 acres), and whole sections (640 acres), and throw it open for settlement. South Africa will never advance until something practical is done to attract those thousands of settlers who are now pouring into the United States and the other British dominions. We talk, but do nothing. I cannot understand why South Africa should be afraid to import honest, hard-working English, Dutch,

Scottish, and American colonists when all other new countries are straining every nerve to induce them to settle, to build homes, and to develop the trackless prairie. I am also amazed that nothing is being done by the Government to advertise the Union in Great Britain and the United States. We want men and money. Agriculture has a great future in South Africa, if supported by industries, but without factories it has no future at all. And so it all comes back to the urgent need of immigration. It surprises me beyond measure that our farmers do not seem to see that an influx of settlers will raise the value of our farms, open up new markets for our produce, and bring not poverty but great and immediate prosperity. But without closer settlement the agricultural future of South Africa is dark indeed." We have quoted from this opinion at length, because it seems to us to answer in simple direct language the paramount question of the country.

RECENT PROGRESS ON SOME LEADING RAND MINES.

The increased labour supply and improved efficiency are doubtless responsible for the better returns issued by almost all the Corner House mines for the three months ended December 31 last. The quarterly reports of several of the leading mines of the Rand Mines—Central Mining group are presented elsewhere in this issue, and it is enough to draw attention here to their chief features. At the Crown Mines, the average quarterly profit was more than maintained, the amount being £320,818 for the last three months of the year as compared with £949,323 for the preceding nine months, making a total of £1,270,141 for the year, of which £1,034,116 has been distributed in dividends. In the return no estimate is given of the payable tonnage developed for the half-year, as the annual report, to be issued in April, will state this information for the whole year, together with particulars of the ore reserves on hand. The native labour force at the end of the quarter was 13,051, as compared with 11,602 at the end of September. At the City Deep the profits earned in the last quarter were the best for the year, being £82,165, bringing up the total for the twelve months to £289,197. Of this £156,250 will be absorbed by the interim dividend of 12½ per cent. declared in December. Development operations were temporarily curtailed during the quarter owing to the number of natives being insufficient for both stoping and developing. It is, however, satisfactory to be able to record that there has been a substantial improvement in this respect since the end of the quarter. The Main Reef Leader exposures continue most satisfactory; the average over the total footage on reef for the period was 589 inch dwts. (*i.e.*, the average width in inches, multiplied by the average value in dwts.). No. 2 incline was advanced 141 feet, and is now 84 feet below the horizon of the 10th level. Connection was made on the 9th level, between the horizon of the 10th level. Connection was made on the 9th level, between the vertical shafts, several blocks of high-grade ore being rendered available for stoping. The 2nd level cross-cut, north from No. 2 vertical, was advanced 346 feet, and Main Reef Leader was encountered early in January, assaying 181·8 dwts. over 7 inches. The intersection of reef in this cross-cut marks an important point in connection with the development of the large tonnage situated between the present ore reserves and the north boundary. At the Ferreira Deep the development footage for the quarter shows a decrease of 698 feet. The reef exposed by development operations has again been of good value. Sand-filling was continued on a small scale, and the original programme has now been completed, a total of 773,629 tons having been lowered into the mine since June, 1910. An increased working profit of £24,386 was earned for the quarter, and costs were reduced by 8d. per ton to 20s. 8d. During the quarter a considerable quantity of ore was trammed on surface from the deep shafts to the outcrop mill, for treatment. £1,214 were expended on capital account, and it is estimated that a further sum of £8,608 will be required to complete the work already authorised. Owing to the inability of the power company to meet the requirements of electric power, the hoists have not yet been electrified. At the Durban Roodepoort Deep the development footage for the quarter is lower by 306 feet. Disclosures on both reefs are again satisfactory, especially those of the South Reef. The yield shows an increase of 5d. per ton, but owing to an increase in the working costs of 10d. per ton, the profits for the quarter are lower by £1,695. The tonnage milled is lower by 690 tons. Unfortunately, the total credit balance of appropriation account, amounting to £77,816 for the year, is not available for distribution. The amount of liability at the commencement of the financial year (£16,447) together with capital expenditure for the year ended 31st December, 1912 (£15,034) have not yet been appropriated. The final balance, for this as for the other mines here mentioned, will not be determined until the balance sheet and accounts as at 31st December, 1912, have been prepared and audited. The sum distributed in dividends is £44,000 for the year. At the Geldenhuis Deep the profits for the quarter were lower than the average for the year, amounting to but £29,091 out of a total of £137,789. Dividends absorbing £87,863 have been distributed, and the capital expenditure for the year has not yet been apportioned. The development footage accomplished was 6,140 feet, as compared with 6,313 feet for the previous period. At this mine up to the close of the quarter the native labour position showed little improvement, and the tonnage milled was again considerably below the crushing capacity of the mine, which is detrimental to economical working. At the Bantjes the quarter's profit of £17,961 brought the total profit for the year up to £75,570, of which the dividends declared absorb £56,509. The development footage accomplished showed an improvement of 216 feet for the quarter, and further increase may be anticipated during the current quarter. The South Reef disclosures for the quarter have continued satisfactory, but the disclosures on Leader have not been as good as in the two previous quarters. The working costs show a reduction of 5d. per ton milled for the quarter, but owing to a reduction in the yield recovered, the profits are £2,127 less. The turbo air compressor has been at work regularly and proved satisfactory. It has materially improved the compressed air position and assisted towards a reduction in the cost of development. Development work has, as a consequence, been recommenced in the eastern and western sections of the mine. Estimates are in hand for the new hoist at the central shaft, referred to in the last quarter's report, and an investigation into the matter of the addition of a fourth tube mill is receiving consideration.

THE VAN RYN DEEP.

The Rand's New Producer in 1913—Excellent Ore Reserve Position—Steady Improvements in Tonnage and Assay Values—Progress of Construction Work—A Great Mine with a Promising Future.

Few Witwatersrand mines have shown such steady and consistent improvement during the last twelve months as the Van Ryn Deep, the great Barnato Deep Level of the Further East Rand, now rapidly being brought to the productive stage, of which we reproduce three interesting photographs hereunder.

Marked Appreciation in Value.

Early in March, Van Ryn Deep shares were quoted at 7s., which on the capital of £1,196,892 represented about £400,000. At the time of writing the shares are quoted at 22s. 6d., which means a valuation of approximately one million and a third sterling. In other words, the value of the Van Ryn Deep mine as reflected in share market prices has improved by 300 per cent. during the past twelve months. It may be asked, "Is such an enormous appreciation justified?" It may best be left to recent official statements as to development and to the present position of the concern in regard to the commencement of milling operations to answer this question. Firstly, the manner in which the mine is opening up underground calls for consideration. Quite apart from the excellence of reef disclosures in adjacent and surrounding mines during the past year, the development position at the Van Ryn Deep has improved in a very marked degree. At the end of 1911 there were developed 603,716 tons of a value of 7·17 dwts., whilst at the end of 1912 the payable ore reserves amounted to 1,015,932 tons of 7·98 dwts. value. In other words, the tonnage of pay ore has been increased by 412,000 tons, and at the same time there has been an improvement of ·81 dwts. per ton, an improvement which, translated into terms of recoverable gold, means something like half-a-crown per ton more from the mill and cyanide works.

Development Statistics.

The pay ore developed in each quarter of the past year is stated in the following table:—

Period.	Tons Developed during Period.	Value, Dwts. p. Ton
March quarter	76,680	6·48
June quarter	110,422	10·18
September quarter	103,198	9·0
December quarter	121,916	10·24

The net result has been that the ore reserves have been steadily increased, whilst at the same time there has been a consistent improvement in value, as is shown in the appended table:—

	Tons	Value p Ton Dwts.
End of December, 1911	603,716	7·17
End of March, 1912	680,396	7·06
End of June, 1912	790,818	7·5
End of September, 1912 ...	894,016	7·67
End of December, 1912	1,015,932	7·98

The quantities of unpayable ore blocked out at these dates were:—

	Tons.	Value p. Ton Dwts.
End of December, 1911	223,618	2·72
End of June, 1912	347,498	3·06
End of September, 1912 ...	383,021	2·91
End of December, 1912	448,621	2·90

Van Ryn Deep and Surrounding Mines.

Generally speaking, the past year's development has been uniformly good in the Central section, and also in the Eastern area, which is adjacent to the Modderfontein Deep Levels property. In the Western section—that is, adjacent to the Benoni mine—developments have at times been disappointing. Taken on the whole, the year's work underground must be adjudged most satisfactory, and in regard to the Western section it must be placed on record that in the report for the September quarter it was stated that at the end of the first level a rise and winze were in ore of considerable width and fair grade. The position of the Van Ryn Deep in regard to adjacent mines is here worthy of consideration. It is not, of course, meant that the returns and ore reserve values of surrounding propositions give a very accurate forecast of the probable recoveries and profits, etc., of the mine in question. At the same time, they have a direct bearing on the possibilities of the enclosed area. A glance at a map of the Eastern Witwatersrand will show that the Van Ryn Deep on its eastern, northern, and southern sides is in very good company. To the west is the property of the Benoni Consolidated, a property which so far has proved a disappointment. Perhaps in conjunction with the Apex, which adjoins the Van Ryn Deep on the western side of its southern boundary, this area will yet justify the moderately hopeful expectations formed of it. Along the eastern side of its southern boundary the frontiers of the Van Ryn Deep claims march with those of the Brakpan Mines. The south-eastern beacon is also the north-eastern apex of another great and promising venture under Johannesburg Consolidated Investment Company control—the Government Areas. Then comes the Modderfontein Deep Levels property immediately to the north, and on the eastern side. North of this again is the property of the New Modderfontein, and adjoining Brakpan on the west the New Kleinfontein. Of these, the New Modderfontein, New Kleinfontein, and Brakpan Mines are productive, and their returns during December last were:—

	Tons Milled.	Output.	Output per Ton.
Brakpan Mines	59,408	£91,020	30/6
New Kleinfontein ...	51,400	70,903	27/2
New Modderfontein ...	50,500	103,449	40/8

	Costs p. Ton.	Profit p. Ton.	Profit.
Brakpan Mines	16/ 6	13/11	£41,233
New Kleinfontein ...	17/10	9/ 7	24,642
New Modderfontein ...	19/ 2	21/ 1	53,160

These figures show that the three adjacent productive mines to the Van Ryn Deep crushed 161,308 tons of ore for a working profit of £119,035, or close on 15s. per ton. Judged from the official published statements as to the Van Ryn Deep's reserves, there should, considering the efficient and modern nature of the plant now undergoing erection, be ability to recover about thirty shillings per ton. Probably working costs will not, when the equipment has settled down to steady work, be above eighteen shillings per ton, and on a basis of 40,000 tons milled per month the company should earn something like £280,000 per annum. This calculation, it should be remarked, is not official, but after the plant has been at work for a month or two, and the mine has settled down to steady production, the earning, it may reasonably be expected, will approximate to that anticipated in the foregoing estimate.

Construction Work.

From the photographs which accompany this article it will be seen that constructional work is well advanced. By

the end of the year the greater part of the spade and shovel work in connection with excavations and foundations had been completed, and in the past few weeks the plant has taken on a new and vastly altered appearance. By the end of the year the remaining mortar blocks had been cast, the tube mill foundations completed, and the retaining walls of the tube mill house, platehouse, and pump room built up. The foundations of the mill bins and building and crusher station had, too, been completed, and a start made on the erection of the steel framing. One of our illustrations, reproduced from photographs taken a day or two ago, shows the present state of the mill framing. Immediately in front (in the right hand corner of the illustration) will be observed the tube mill house. Another photograph shows the interior of this latter structure and the eight tube mills in place.

Type and Capacity of the Plant.

In order to give a more or less completed effect to this article on the present position and prospects of this mine, we may again remark that the Van Ryn Deep's battery will consist of eighty heavy Californian stamps, each of 1,900 lbs. falling weight. These will be supplemented by eight tube mills, each 16ft. 6in. by 6ft. in dimension. The capacity of the plant will be about 40,000 tons per month, which, on a basis of 25 full milling days per mensem, gives the high duty of 20 tons per stamp per day. There will be room for a further ten stamps, thus bringing the capacity up to ninety heads or in quantity between 500,000 and 600,000 tons per annum. As the property is a very large one, further extension may be undertaken in the near future, but it will be realised from the foregoing that the mine will be crushing a large tonnage right from the start of productive operations. The mill will be operated by electric power purchased from the Victoria Falls Company, and, in accordance with the latest views on Rand metallurgical practice, there will be no plates in the battery house. Apart from the Butters' filter plant, there is nothing very novel (in the light of the Consolidated Langlaagte and other new equipments) in the classification and cyanide plants. The sands plant will include three collecting tanks, from which the sand will be conveyed by a Blaisdell distributor to eight treatment tanks. Disposal of residues has been well provided for. A haulage plant will be run underneath the Main Reef Road and dumped on the south side of this thoroughfare. There is here a very large depositing site, and as the prevailing wind is in a north to south direction, this arrangement will materially assist in keeping the reduction and treatment plants free from the troublesome dust. At one time the location of the whole equipment to the north of the Main Reef Road was considered, but, as this would have involved bridging over or tunnelling under this thoroughfare in order to transport ore from the shafts to the mill bins, it was finally decided to construct the equipment on the north side. It remains to be said that stamps will be dropped about the middle of this year, and that the company will enter the productive stage under auspices as happy as those of its neighbour, Brakpan Mines, which has placed a fine record to its credit since crushing commenced in the middle of 1911.

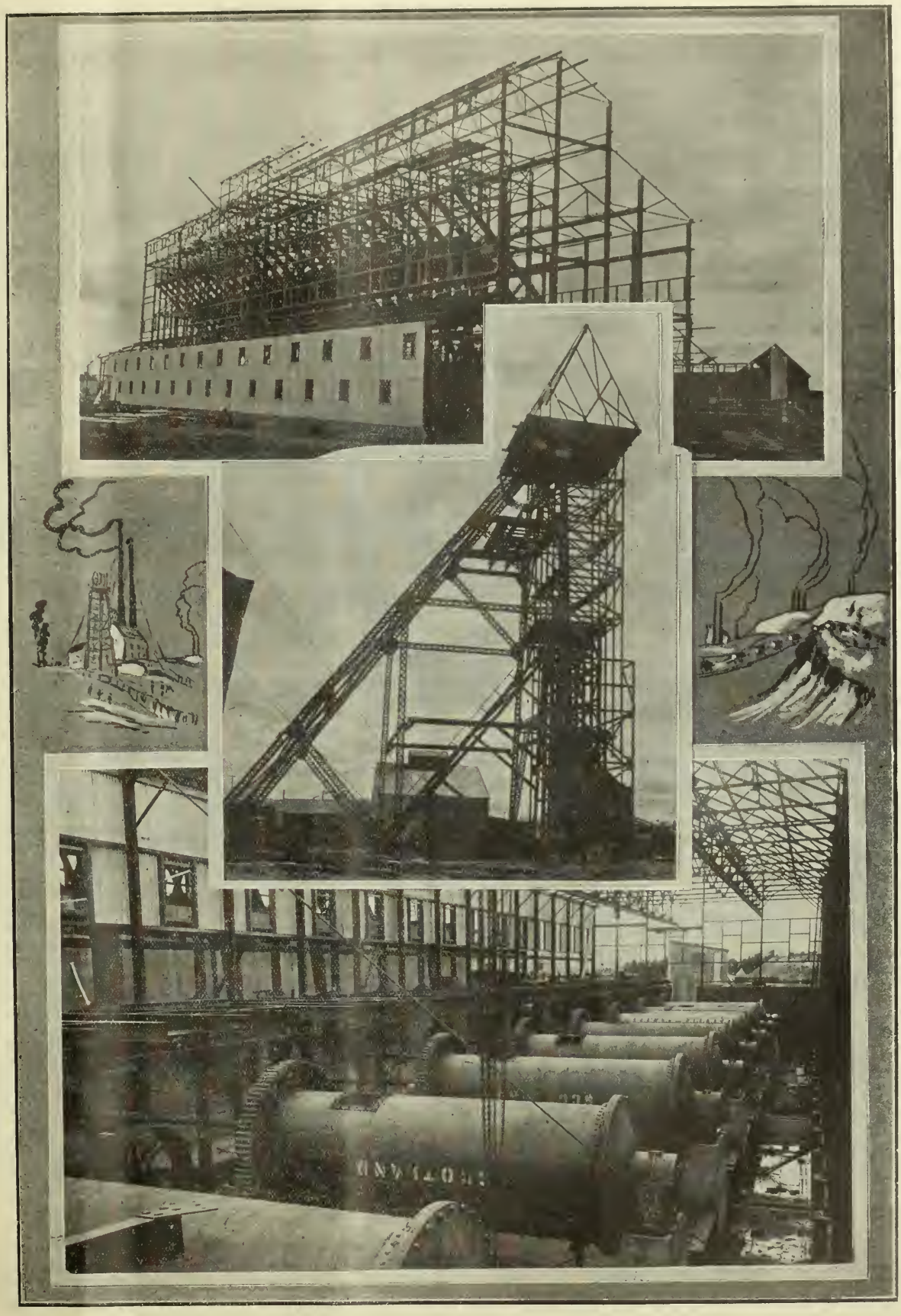
EXPANSION AT BRAKPAN MINES.

Contemplated Extension of Mill—Big Developments in the Brakpan-Schapenrust-Springs Mines Area Anticipated.

We understand that the Brakpan Mines Company contemplates increasing its milling equipment from 160 to 200 stamps. For some months past the company has been operating 150 stamps of the 160 erected and 8 tube mills, and in December last milled 59,408 tons—a duty of 13 tons per stamp per day. With a mill of 200 stamps at work, the milling capacity should be increased to between 70,000 and 75,000 tons per mensem, which, at a recovery of about 7 dwts. per ton, would mean an output of about £100,000 per month. The extension of the Brakpan Mines battery has been borne in mind since equipment first of all was installed. Indeed, the mill building was designed to accommodate an additional number of heads such as are alluded to above. In this connection the observations of the Chairman at the meeting on April 8, 1910, are of interest. He said: "I mentioned last year that it was hoped the initial milling capacity of the company would be one of 60,000 tons per month, or just double that which was originally proposed. This plan is being carried out, and our initial stamping equipment will consist of 160 stamps of 2,000 lb. weight each, which will ensure the treatment of the tonnage just mentioned; whilst the mill building itself will be built to accommodate a further 40 stamps and to allow of still further extension when that course proves desirable. The productive operations of the company to date certainly seem to indicate justification for extension of the milling plant. It may be recalled that milling operations commenced at the Brakpan Mines property about the middle of 1911, so that 1912 may be said to have been the company's first completed productive year. With the publication of the report for the quarter ended with December last one can state in exact terms what the year's work has brought forth. The aggregate result wholly is in keeping with the great promise of the proposition, and it is eminently satisfactory to note that in each quarter the results secured were in advance of those won in the preceding period. Thus in the March quarter 130,010 tons were milled for a profit of £70,715. In the next three months the tonnage was 156,946, and the earning £112,069. The September quarter witnessed a further advance to 171,230 tons and £121,589, whilst in the three months ending December the year's high-water mark was reached by the declaration of a profit of £123,667, the result of milling 179,328 tons. Working costs were reduced from 17s. 9d. to 16s. 6d., and including reserve gold transferred to current account in March the total profit amounted to £144,015, the working revenue being just under a million and the ore milled amounting to 637,523 tons. The development work carried out during the final quarter of the year came to 5,626 feet, of which 3,930 feet were on reef averaging 8·8 dwts over a width of 33·9 inches. Shareholders have every reason to be gratified at the two dividends paid out in the first full year of milling, and should also be pleased at the general progress and state of stability disclosed in the last quarterly report. Further than the extension of the mill to 200 stamps one is not warranted to speak at present, but it may be remarked that, having regard to the fact that the Springs Mines shafts are nearing the reef and that tenders for the new Government lease in respect of ground to the south of the Brakpan Mines are being put in, it looks as if a still larger number of heads will be at work on the Brakpan Springs Mines-Schapenrust section of the Rand in the not far distant future.

Worcester G.M.

An ordinary general meeting of shareholders will be held in the Town Hall, Worcester, Cape Province, on Wednesday, 12th March, at 11 a.m., for the purpose of receiving the directors' report, balance sheet, and profit and loss account to 31st December last, for election of three directors in place of Messrs. F. Lindenberg, Dr. D. de V. Hugo, and J. J. Rabie, who retire, but are eligible for re-election; for election of two auditors and for general business.



Some Views of the Van Ryn Deep Equipment. (1) The Mill in course of Construction. (2) A Headgear. (3) Tube Mill Plant.

SOME RESUSCITATED MINES?

Where Estimates Invariably Have Erred—The Jumpers, Champ D'Or, and Stanhope.

It has come to be accepted as an axiom that the life of a Rand mine in actual practice invariably exceeds the most optimistic estimates. Time after time expectations have been exceeded. A little ore has been found here, a little there; stopes at one time deemed to be of no value have given certain tonnages of pay ore, and thus the life has been prolonged. In some cases the prolongation has been carried on to such a degree that one wonders whether to deplore the management of earlier days or marvel at the keen-sightedness and enterprise of the present-day owners. Years ago the Bonanza constituted a most surprising little proposition. It seemed, indeed, to be a veritable widow's cruse of oil, always capable of yielding a little more ore and giving up a little additional profit. Amongst the mines which are to-day giving special evidence of this ability to continue production, mention must be made of the Jumpers. In conjunction with the Treasury, this old mine still is announcing outputs. Old stopes have been re-opened, and by means of most careful mining, by utilising waste packs and timber, a very fair state of safety is maintained in the underground workings. In the case of a mine which has attained to this stage it is, of course, very difficult to say just when the *ultima thule* of profitable operations has been reached, but whatever may be the fate of the Jumpers in the future, it is certain that it will have to its credit a return very substantially in excess of what was anticipated a few years ago. Of another mine long since supposed to be exhausted, and now being worked by a small private syndicate—the Champ d'Or—we have not heard very much recently. It was, however, reported some little while ago that development had exposed certain tonnages of ore said to be of payable value, the presence of which was not suspected. The most surprising property of all, however, is without doubt the Stanhope, *alias* the Burham, and now, we believe, under the auspices of the Palmer's North Rand Syndicate, the Celine. This syndicate has for some little time past been developing a small property on the North Rand. A month or two ago the Stanhope was taken over; at first much difficulty was encountered in connection with procuring a water supply, but after a time this was satisfactorily settled, and the syndicate began to earn small profits. It has been reported that a " new " reef has been encountered. According to descriptions, for the absolute accuracy of which we cannot vouch, this " new " reef is the South Reef Leader. This has proved an ore body of exceptional richness along a considerable stretch of the Rand, and was found in the uppel levels of the Stanhope in the early days, but was lost when a large fault was encountered. Whether very much importance can at this junction be attached to the discovery or not it is somewhat difficult to say, but we understand that the owners regard the " strike " as adding a substantial life (on a 10-stamp basis) to this mine. We are in ignorance of the latest position at this property, and would welcome reliable information on this point.

LEEUWPOORT TIN MINES.

Large Body of Ore Reserves—Seventy per cent. of the Capital in Sight—The Geological Conditions.

The principal feature of the report on the farm Leeuwpoort, dated February 12th, and written by Mr. S. C. Thomson, consulting engineer to the company, is the statement relating to the ore reserves on the property. The summary of ore in place shows that there are 79,012 tons having a value of 2·44 per cent. metallic tin, while the ore at grass is put at 21,172 tons, with a value in metallic tin of 1·16 per cent., the total quantity being 100,184 tons of an average value of 2·17 per cent. It will be seen at once that very different ideas prevail at Leeuwpoort to those that find favour at the Rooiberg and Zaaiplaats, with regard to the method of estimating ore reserves. The conditions which are associated with the existence of the ore bodies at Zaaiplaats make it essential, of course, that the greatest caution should be observed in calculating the ore in sight. At the last annual meeting of the company it was maintained that the ore reserves could only properly be expressed in terms of the number of tons actually broken and dumped, and the manager, Mr. Gilbertson, considered it undesirable to make any statement in connection with development results except in terms of the superficial area of payable faces exposed, together with their average value. At the Rooiberg a similar conservatism is practised, and we pointed out a few months ago that beyond showing that a fixed supply of ore was being maintained, no other additions to the reserve were recorded. For instance, the tonnage *in situ* during the three years ended June 30, 1912, has figured in the yearly reports at quantities varying between 21,300 and 24,309 tons, in spite of the fact that a large amount of development work has been in progress. The lower figure represents the tonnage as stated in the last annual report.

The Method of Valuation.

At Leeuwpoort the circumstance that so comparatively large a quantity as 100,184 tons is reported may, of course, be explained by the fact that since milling has not yet begun, and since some estimate of tonnage must be made, it has been made upon the only basis available, that is, by sampling round the ore blocks and calculating cubical contents in the ordinary way. How far it may be necessary to modify the figures in actual working remains to be seen. The lower grade of the ore as estimated by the consulting engineer leads one to the conclusion that the values are more uniformly disseminated than at the Rooiberg, and this view is confirmed by information obtained at various times from other sources. If so, the possibilities of error in making an estimate of the reserves are by so much the more lessened. The comparatively low average value of the ore when that of the Rooiberg is considered is a matter that attracts attention in Mr. Thomson's report. The ore reserves of the Rooiberg, those calculated for the purposes of the annual report, that is to say, and excluding such bodies as might have been brought into account on a less rigid basis of assessment, were at the 30th June, 1912, 21,300 tons of an average recovery value of 4·7 per cent. tin. Assuming a recovery of 80 per cent. as quoted by Mr. Thomson, the equivalent figure for the Leeuwpoort ore would be 1·71 per cent., or little more than one-third that of the other.

Profit in Sight.

The great value of the Leeuwpoort mine is apparent, however, when these figures are reduced to pounds sterling. It is estimated that the reserves mentioned, with 10 per

cent. sorting and an 80 per cent. extraction, are worth at present prices (£229 per ton) a sum of £359,530, or at the more conservative figure of £180, about £282,600. With a working cost of 40s. per ton for mine ore, and 25s. per ton for dump rock, the total cost of dealing with the tonnage mentioned would be £169,963, leaving a profit of £189,967 or £113,037, according to the price of tin prevailing. The capital of the company is £275,000 in £1 shares, and it will be seen, therefore, that even on a moderate basis, there is nearly 70 per cent. of the capital already in sight in the shape of profits. It will be noticed that the consulting engineer estimates the working cost at 40s. per ton, the costs including, it is explained, mining, milling, transport and realisation. This is pretty much the same as at the Rooiberg, where costs, exclusive of general charges, amounted last year to 38s. 4d. per ton milled. The mill and dressing plant, which is expected to deal with 54,000 tons per annum, is in process of construction, and it is hoped that operations will begin some time during the month of August. Here, even more than at the Rooiberg, perhaps, an ample policy of lateral development will be necessary, for, as may have been remarked in a report of Mr. Kynaston, the director of the Geological Survey of the Transvaal, which appeared in our issue of the 8th inst., the southern portion of the farm Leeuwpoort is occupied by the red granite. The proximity of the granite in the mine workings being thus more or less certain, the aim of the management will doubtless be to extend discovery as far as possible in the stratified rocks rather than penetrate to the uncertain mass of the underlying granite.

THE QUESTION OF DEVELOPMENT.

The Evidence of Statistics—A Matter of Increasing Importance—Some General Considerations.

Among the matters which will doubtless engage the attention of shareholders in a greater degree than usual during the period devoted to the forthcoming annual company meetings is, or should be, that of ore development. It is one of the foremost items of the policy of the average Rand mining board to keep ore reserves as far in advance of milling requirements as possible. It is unnecessary to descant upon the very obvious importance of such a measure. A few years ago, when amalgamations and big milling schemes were filling the public mind with visions of reduced working costs, one of the most satisfactory results which promised to follow upon this betterment was the lowering of the line of profit, and the automatic increase of the quantity of potentially profitable ore underground. As we recently pointed out, this desirable end has not been attained, as far as the Rand on the whole is concerned, because, although the average working cost was temporarily lowered, it has again advanced, and, in addition to this, the average value of the ore sent to the mill is higher than formerly. Any increase of the ore reserves, therefore, by the automatic inclusion of lower grade ore within the limits of the potentially profitable rock, has quite as automatically been nullified by an equal reverse movement. If development was a question of importance when the process of accretion was more or less active, it is clearly much more urgent now that the assets mentioned have proved to be somewhat imaginary. As throwing some light upon the position of things, the following figures, taken from the statistical reports of the Mines Department, will be of interest. They show the amount of development carried out on the Rand at various periods over an interval of a year and a half:—

1911.	Main Drives and Cross-cuts. Feet.	Main Shafts. Feet.	Other Development. Feet.
June	48,941	4,340	28,702
1912.			
June	39,642	3,878	25,745
December	36,559	1,554	22,010

The full significance of these figures is not apparent until it is added that the quantity of ore milled, percentage of sorting, and value recovered per ton milled were as follows:—

1911.	Sorting. %	Tons Milled.	Recovery per Ton Milled.
June	13·05	1,995,525	27/6
1912.			
June	12·73	2,121,075	28/5
December	11·70	2,218,305	28/0

Put briefly into words, this last statement is to the effect that with less sorting an increasingly greater tonnage has been milled, and a higher grade of ore treated. The last-mentioned circumstance is not well demonstrated by the figures quoted for December, but it is nevertheless true, as we have previously had occasion to observe, that the average milling grade was higher last year than for some time before. It is possible, of course, that a higher average grade of rock has been mined in the ordinary way on the Rand during the course of the past year, or a more careful process of mining may have been adopted. It is more likely, however, that the grade of the ore milled has been deliberately raised by selection, and although the operation may have been judiciously performed, and only to a moderate extent, it would tend to increase the necessity for a more active development policy rather than permit of any relaxation of effort in this direction.

The Government Attitude.

In view of these considerations, it is much to be regretted that a more liberal view of the importance of advance development is not taken by the Government. The Taxation Act insists that " excess development " shall not be chargeable to working costs, but that it shall be subject to amortisation in the same way that ordinary capital expenditure is dealt with. Only such advance development expenditure as is necessary to meet the milling requirements of a company from year to year is permitted to be charged to working costs, and to be thus deducted in full from the gross profit before 10 per cent. profit tax is assessed. Without some such limitation it is evident, as we pointed out in some articles upon "Mine Taxation in the Transvaal" a little while ago, that the uses to which an advance development account might be put, with a view to evade taxation, might be fairly extensive. That only sufficient work for a twelve months' crushing should be allowed, free of taxation, is, on the other hand, an exceedingly harsh and inconsiderate way of dealing with the problem. It puts a premium upon hand to mouth methods of mining, and discourages a policy which, if judiciously carried into effect, should be of inestimable value to a mining company. It bears unequally, moreover, upon different undertakings, inasmuch as those mines which have only a year's reserves ahead of the mill, and are therefore in greater need of development, are liable to a bigger tax if they carry out their duty to their shareholders than those concerns which have several years' rock in front of them, and are inclined to shirk their responsibilities. It is only fair to the Government, however, to say that a proposal is said to have actually been made by them, when the Profits Tax was under discussion, to allow three years' advance development to go free of any liability to taxation by way of the amortisation process. Eventually, however—whether because the mining groups could not make concessions to the Treasury on the question of the tax, or whether the Treasury grew tired of being asked for them, we are unable to say—even this proposal was withdrawn, and the strict

letter of the Act adhered to. There is no reason to assume that the falling off in development work which is shown in the Mines Department statistics is in any great degree due to the operation of the Taxation Act. It is more probably due to the greater concentration of the labour force upon work necessary to keep the mills continually supplied.

The Position Last Year.

At the end of 1911 the ore reserve position as regards milling requirements was apparently fairly sound. Practically no company had a smaller supply than was sufficient to provide a two years' crushing, and few had less than three years' reserves. The greater number were between the two and three year limits, many were provided for between three and four years, and some half-a-dozen had reserves sufficient for more than four years. Of these latter, the Crown Mines showed reserves sufficient for a five years crushing, while the New Modder and Modder B recorded figures which showed advance supplies enough for a milling period of six years and ten months, and five years and one month respectively. In the latter instances these unusually large reserves do not necessarily imply a correspondingly large development expenditure, for, owing to the scheme of opening up the mine in unusually large blocks, a wide area of ground is developed at a lower rate of cost per ton exposed than is ordinarily incurred. It cannot be claimed, of course, that such blocks are as susceptible of measurement with regard to tonnage and values as are those of smaller dimensions, but the security afforded by this method of exploitation, and the facilities it offers for extensive mining operations, largely compensate for any disadvantages that arise from the difficulty of accurate valuation.

Reserves in Relation to Capital.

Although at first sight the ore reserve position, as expressed in milling years, was at the end of 1911, and probably is to-day, quite satisfactory upon the average, this view of looking at the question is not altogether a sound one. An undertaking with a capital of, say, two millions sterling, and ore reserves sufficient for four years' crushing, is not necessarily so well provided for as a concern which, with half the capital, has at the same time only half the number of milling years. So many other factors enter into the problem that a mere statement of the position in terms of time is apt to obscure the truth. Assets of ore expressed in terms of a probable return upon the capital of a company give quite a different appearance to affairs, and if this method of calculating reserves were in use it is possible that the ore reserve position of companies which appear upon a sound footing in this respect might present an altogether unsatisfactory aspect. The information to be provided in connection with this somewhat important question at the annual meetings of this year will doubtless, in view of the facts to which we have drawn attention, be looked forward to with interest. There seems no reason to feel anxiety on this score, as far as the Rand is concerned, but it can hardly be denied that the question of development has become one of increased importance.

PROGRESS OF THE S.W. TRANSVAAL DIAMOND FIELDS.

The Returns for December and 1912.

The complete returns for December from the various diggings throughout the South-Western Transvaal are now to hand, and the total is only £900 behind the preceding month. The returns are as follows:—

	Carats.	*Value.*
Bloemhof	2,157	£10,779 4 6
Rietput	594½	3,916 10 0
Goedgenoeg	657	3,824 5 0
London	526¼	3,456 0 0
Avondster	594	2,779 5 0
Panfontein	431	2,010 0 0
Mooifontein	353½	1,503 10 0
Koppiesvlei	255½	1,159 7 6
Dievedraai	165¼	894 10 0
Modderkraal	210½	882 17 6
Weltevreden	178¾	769 10 0
Zwartlaagte	146¾	743 2 6
Kuilfontein	148½	631 15 0
Blesbokfontein	130	600 7 6
Christiana	109¼	557 12 6
Kromellenboog	61¾	316 10 0
Grootdoorns	55½	245 0 0
Goedehoop	16½	175 10 0
Biesjeslaagte	19¼	110 0 0
Other sources	16¼	200 10 0
	6,857¾	£35,605 12 6

Twelve Months' Finds.

The returns for the year 1912 have been as follows:—

	Carats	*Value*
January	6,265¾	£32,026 3 0
February	7,501⅜	34,997 17 6
March	7,874½	37,352 16 9
April	5,904½	26,253 12 0
May	6,693¾	29 000 10 0
June	6,180¾	26 730 0 0
July	5,868	28,618 1 6
August	7,282¾	36,764 9 0
September	5,833½	30,498 7 0
October	5,954⅜	32,316 17 6
November	6,621⅛	36,503 16 6
December	6,857¾	35,605 12 6
	79,708⅜	£386,668 3 3

Principal Producers in 1912.

Subjoined we give the areas which have produced more than £1,000 worth of diamonds during the year 1912, and it will be noted that from Bloemhof and Mooifontein more than half the total of the whole South-Western Transvaal's output was obtained:

Bloemhof	£108,207 14 6
Mooifontein	100,910 12 0
Panfontein	29,319 4 0
London	23,668 6 9
Weltevreden	19,159 5 0
Avondster	14,910 6 0
Rietput	14,410 4 6
Christiana	13,010 7 6
Blesbokfontein	11,887 3 6
Goedgenoeg	10,772 4 0
Modderkraal	7,488 13 6
Kuilfontein	6,081 2 6
Grootdoorns	4,185 12 6
Koppiesvlei	3,854 0 0
Koksrust	3,713 8 0
Zwartlaagte	2,972 5 0
Kromellenboog	2,375 7 6
Zoutpan	1,702 13 6
Dievedraai	1,462 0 0
Maroetjesfontein	1,184 17 6

New Lisbon-Berlyn, Ltd.

Mr. Harold Sharpley has taken over the management of the New Lisbon Berlyn, Ltd., in the Pilgrim's Rest district.

THE MANAGER AND STAFF OF THE ROBINSON DEEP.

Bottom Row.—Left to right : C. C. N. Fradd, shift boss; A. W. Walker, assistant storekeeper; R. C. Bothwell, mine clerk; W. L. Fricker, assistant sampler; D. D. Clark, assistant sampler; A. Rose-Innes, assistant sampler; C. P. Eckstein, assistant sampler; C. H. Gronan, assistant storekeeper; A. Bawer, assistant surveyor; H. R. Jolly, chief assayer; C. L. Geard, clerk; W. Swift, assistant timekeeper; C. T. M. van Niekerk, assistant timekeeper; J. Lewison, typist; J. M. Neall, assistant surveyor; A. B. Rollins, assistant draughtsman.

Second Row.—R. McKie, surface manager; J. McNeil, foreman drillsmith; J. M. Neall, surveyor; G. Horne, mine captain; B. Orpen, mine captain; A. Smith, mine captain; P. O. Neil, underground manager; J. J. Wessals, manager; A. Wallace, engineer; G. C. White, secretary; J. M. Dixon, mill manager; Dr. Taugh, medical officer; A. H. Chambers, foreman blacksmith; H. Lea, cyanide manager; R. Drennan, assistant engineer; W. D. Munro, acting native timekeeper.

Third Row.—C. R. Cannon, assistant sampler; H. C. Barrett, draughtsman; L. L. Melville, shift boss; D. M. Brain, shift boss; A. S. Knight, shift boss; K. J. McWilliam, shift boss; O. V. Whittle, electrician; T. R. Keegan, accountant; H. Zeppenfeld, shift boss; S. Pienaar, shift boss; W. G. Grose, assistant surveyor; C. E. Park, foreman fitter; C. H. Gregory, foreman timberman; E. G. P. Rayner, foreman carpenter; A. C. Stevens, assistant timekeeper; H. C. Ballance, white timekeeper.

Fourth Row.—C. F. Diesel, foreman timberman; T. J. Boyde, foreman timberman; A. G. Hyde, shift boss; A. L. James, head sampler; L. J. du Preez, shift boss; W. S. Ponsford, assistant assayer; E. R. Riordan, assistant timekeeper; A. C. Hepburn, assistant timekeeper; G. St. L. Devenish, compound manager; L. C. de Gier, bossing gangs; F. D. Phillips, foreman cyanide; E. Moroney, assistant storekeeper; C. C. R. Thompson, assistant timekeeper; A. N. Carswell, statistician; H. R. Thompson, mine clerk; J. M. Campbell, foreman mill; A. Jones, foreman dump.

THE CHARTERED COMPANY'S REPORT.

Little Discussion or Interest Attracted—Meagre Reference to Mining—Agricultural and Railway Questions.

The report of the British South Africa Company for the year 1911-1912, issued in London on Tuesday, states that the issued and paid up capital of the company now stands at just under nine millions sterling—to be precise, £8,937,559. The credit of balance for the year ended March 31st last amounted to £101,569, a reduction of £69,041 compared with the previous year, "mainly owing to the conversion of interest-bearing loans to railway companies into shares in the Rhodesia Railways Trust." The temporary sacrifice of revenue, the report goes on to state, ensures a preponderating percentage in the reversionary value of this important asset.

The Imperial View and the Shareholders' View.

The declaration of a dividend by the Chartered Company seems as far off as ever. The Chartered Company for years past has been rendering valuable service to the Empire in the building up of a great Colonial asset, but from the point of view of the ordinary shareholder the knowledge that the British South Africa Company is carrying on the Imperialism of the man who gave his name to the country must be tempered by the non-return of any sums by way of dividend distribution after all these years. Candidly, we cannot regard the cabled summary of the report now before us as a very satisfactory statement. An apologetic sort of notice appears in the dailies stating: The Chartered Company's report has aroused less discussion than usual, which is attributed to the fact that while the general progress is encouraging, good results have not been translated into cash. Also, there are so many other important matters at present occupying the attention of the public that some antipathy with regard to Rhodesia is not unnatural. According to a writer in a leading London financial paper, the drought has so severely affected the country that it is questionable whether the optimism of Sir William Milton as to a return to prosperity will be borne out in actual result by the time stated. Certain statements arising out of an interview recently published in this paper have attracted considerable notice in London, and it has been officially announced that the tone of these was unjustifiably pessimistic. Whilst we admitted that the views in question doubtless were coloured by personal disappointment and failure, we associated ourselves with them to a considerable degree, and we must say there is little or nothing in the report now before us which induces us to amend or alter our opinions.

Scant Reference to Mining.

In the cabled summaries received on this side there is a marked omission of reference to mining operations, save that "the general outlook of the mining industry was never more satisfactory or the prospects more hopeful than at present." Whilst we do not for a moment subscribe to the recent ultra pessimistic utterances of Mr. Cromwell Hockley and other unduly severe critics of Rhodesian mining, we must say that a considerable amount of fact and figure will be required to convince many shareholders of the accuracy of the foregoing statement.

Agriculture.

In the absence of any detailed statements as to the mining industry, which after all is at present the backbone of the country, we must turn to agriculture which admittedly possesses enormous and enduring potentialities, although the performance to date has been disappointing. One of the most interesting features of the report is the announcement that the Board, appreciating the value of local experience gained at central farms, have decided to improve and extend facilities, and have authorised provision in the Estimates for the establishment of an Agricultural College in the vicinity of Salisbury, which will be a branch of the Department of Agricultural. The administration of Northern Rhodesia as a single territory is working smoothly and satisfactorily.

Commercial Policy.

Turning to the commercial policy of the company, the directors say now that adequate funds are available the company has embarked on a large scale at its developed estates on proved branches of Rhodesian agricultural and pastoral enterprise. Thus a large commercial money-earning department is being built up. Special attention is being given to ranching, tobacco and citrus fruits, and the land devoted to these purposes will become suitable for closer settlement. The company is in an exceptional position in this connection, as any area withdrawn for the purpose of closer settlement can easily be replaced. Cattle raising by companies and individuals will be of great future benefit to the community generally. The utmost importance is attached to encouraging it on a considerable scale, as it will materially accelerate the early settlement of the country. The growth of the citrus fruit industry is also being actively pushed.

Land Values.

The rise in land values has introduced a new factor in land settlement policy, which is now susceptible to wide differentiation according to soil, etc. Holdings will in future be sold on their merits after expert examination. The company's selected estates will be worked on a large scale for the company's own profit. Consequently purely experimental work will be transferred to the Agricultural Department and Agricultural College. Special attention is directed to the Northern Rhodesia rubber. The Board is satisfied that the time has arrived for an outlay on the necessary machinery. Rubber will not be purchased from native collectors, but will be extracted by the company's own employees from plants grown in the company's own plantations. Operations will be commenced on a limited scale on a suitably-situated estate, and it is anticipated that they will be capable of great expansion. The report dwells on the efficient condition of the railways. An important fact from a traffic viewpoint is that the increased local and export trade is counterbalancing to a great extent the decline in imports. The report states that the recent pronounced and continuous rise in land values, both in Southern and Northern Rhodesia, is one of the most striking features of the present situation. Constant demands are being received for new railway stations, sidings, and other facilities. The company, subject to debenture interest, is the proprietor of the railway undertaking to upwards of 85 per cent. The report further states that the four new directors, Mr. Wilson Fox, Baron Emile D'Erlanger, Mr. Dougal Malcolm, and Colonel the Hon. Evarard Baring, will bring their valuable experience to bear on the affairs of the company. It also refers to the appointment of an executive committee whose members will devote their whole time to the company and will hold office for five years.

Rooderand.

The Mining Commissioner of Klerksdorp has addressed the following letter to the Rooderand Gold Mining Company, Limited, Box 2567, Johannesburg:—"In terms of section *twenty-two*, sub-section (*b*), of the Precious and Base Metals Act, 1908, I hereby demand payment at my office of the sums of £100 (one hundred pounds sterling) and £18 (eighteen pounds sterling), being the amounts due in respect of Mynpachten Nos. 558 and 559, on the farm Rooderand No 26, District Potchefstroom, Mining District of Klerksdorp, for the year beginning 6th of August, 1912. In default of payment of these amounts within three months after publication of this demand in the *Union Gazette*, the mynpachts in respect whereof such payment is not made will be declared cancelled."

POSITION AT THE ROOIBERG MINE.

Recovery at the New Mill—Great Savings Effected—Proposed Hydraulicing Scheme.

The recently completed dressing plant at the Rooiberg Mine is doing all that was expected of it, and when it is remembered that great anticipations were formed when the scheme of treatment was finally worked out it will be admitted that there is every cause for satisfaction. A certain small percentage of fine tin still remains to be caught, however, and further appliances will shortly be installed in order to effect the required saving. When this is accomplished the extraction by the Rooiberg plant will probably be as perfect as it is possible to obtain by mechanical means. The extraction at the end of June, 1912, partly by means of the old and partly by the use of the new plant, was 57·97 per cent. on a mill pulp assaying 4·943 per cent. metallic tin. On this basis a working profit of £52,347 was made, which after deductions on account of development, exploration, and shaft sinking, was reduced to £32,721. Assuming that of the balance of 43·03 per cent. all but a very small percentage is finally recovered in the new plant, at a lower cost, represented merely by dressing and other apportioned surface charges, it is obvious that the revenue of the company will be considerably added to. In fact, the whole cost of the new plant will be wiped out within less than a year as a result of the increased recovery.

Alluvial Possibilities.

Some time ago careful tests were made of the alluvial ground which covers a large extent of the property, and even with the heavy expenditure, consequent upon the method of mining and washing employed, the results came out at a profit of 1s. per cubic yard. It is considered that an estimate of 1s. per yard profit is a conservative one. There are probably about 50,000,000 cubic yards of this alluvial ground on the property, and assuming a profit of not more than 1s. over this quantity, there remains a clear sum of £2,500,000 to be distributed in dividends. A great deal depends, of course, upon the period over which the working of this vast accumulation is extended, but upon any reasonable basis of exploitation there is obviously the possibility of a large annual addition to the company's income. Surveys of the ground in question are to be made, and it is proposed, we believe, to make a beginning with a hydraulicing scheme at an early date. In furtherance of this project a high level dam would be constructed at the most convenient point from which the water, after being used for sluicing purposes, would be diverted to the company's main dam and thus increase the supply for the mill and dressing plant.

PROGRESS IN ORE DRESSING.

Gyratory Crushers v. the Blake Type—Scope of the Hardinge Mill—Baffle Plates in Classifiers.

In the annual review number of the *Mining and Scientific Press*, Henry S. Munroe discusses the progress that has been made in ore dressing during the past year. The following extracts will be of interest to Rand metallurgists:—

Crushers.

Gyratory crushers are taking the place of the Blake swinging-jaw type in most of the mills recently built. The great advantage in the use of this form of crusher is not only its large capacity, but the great saving in power effected, amounting to 40 to 60 per cent. This offsets the more complicated design, which tends to increase repair and maintenance costs and loss of time in the mill. Gyratory crushers require somewhat greater height between the feed and discharge-level than the Blake type of crusher. This advantage, however, has been lessened by the introduction of the pillar type, in which the gyratory motion is about a fixed vertical axis instead of the pendulum movement of the earlier type. The Symons disc crusher has attracted much attention and constitutes a new type of crushing machine likely to prove of importance. In this the ore is crushed between two saucer-shaped discs revolving at high speed in the same direction, one of the discs being given a gyratory movement. The ore is fed at the centre and escapes by centrifugal force at the circumference of the discs, thus securing a maximum length of discharge opening where the crushed material can escape. In this it differs from all other types of crushing machines, where the length of the discharge opening is either equal to the feed opening, as in rolls and in jaw-crushers, or is of less length than the feed opening, as in the gyratory type. The screen analysis of crushed material shows a remarkably small proportion of slime and, if this be confirmed by other tests, shows that this crusher is likely to do even better work than rolls. As designed at present, these machines crush ¼ or ⅛ in. only, but it is quite possible that their field can be extended to the production of finer material. At the Federal mill No. 3, at Flat River, Missouri, the crushing plant has been remodelled during the present year by replacing jaw crushers and coarse rolls in each section by two No. 7½ Symons gyratory crushers and four 48-in. Symons disc crushers. The effect has been a reduction of about 80 h.p. in operating load and an approximate increase of 1,000 tons in the crushing capacity of the mill. The saving in power, however, is mainly due to the use of gyratory crushers instead of the swinging-jaw type.

The Hardinge Mill.

One of the most interesting of recent changes in mill practice has been the instant and wide acceptance of the Hardinge conical tube-mill. Tests have been made for a period of seven months by the Miami Copper Co., and tests of shorter duration have been made by David Cole at the concentrator of the Arizona Copper Co., at Morenci, and it has been pretty well demonstrated that the new mill fills a very important place for the fine grinding of ores in which the mineral is finely disseminated. Within the past two years a large number of these mills have been placed in the Lake Superior concentrators for the re-grinding of middle products and tailing, and a new re-grinding plant for the Calumet & Hecla M. Co. is now building which will call for 64 of these mills. Recently I had the opportunity of examining screen analyses of the product of these mills from many sources, and, while the results leave much to be desired from the standpoint of sliming, it is quite clear that the results so far obtained show less colloidal material than is produced by the high-speed Chilean mill, and no more than from the Huntington mill, which heretofore have been the accepted machines for very fine grinding for concentration purposes. The Hardinge mill is evidently destined to take the same place in concentration that the long tube-mill occupies in cyanide practice.

Classifiers.

The Richards-Janney and the Richards hindered-settling classifiers have found extended application in many of the largest concentrating mills. The pulsator classifier does not seem to have had as much success. A new form of the pulsator classifier in which the adjustments have been greatly simplified has been introduced, also a single-cell pulsator classifier designed to be attached to mill launders. Conical

settlers or Callow cones have replaced the rectangular spitzkasten in almost all of the modern mills. The credit for the first use of these cones, however, should be given to C. B. Parson, of Bonne Terre, Missouri, who built a series of settlers of this type in the first Doe Run mill twenty-five years ago. The advantage of the conical type of settler is that the great length of discharge edge produces a very slow surface current and consequently greatly facilitates the deposition of fine material. The conical tank with radial flow will have several times the capacity of a rectangular tank where the discharge is over one edge only. R. H. Richards has shown that the surface current of box classifiers produces an overturning current, descending on one side of the box and ascending on the other, which affects the whole mass of pulp. This overturning vortex current carries down much fine material which would otherwise be carried over by the horizontal current. This accounts for the poor work done in the classification of fine slime in the old spitzkasten. In a conical tank the vortex current induced by surface flow takes the form of an annular ring like the smoke-ring made by a locomotive. This vortex ring has the same effect as the overturning current in the box form of classifier, so that the slime is no better classified in the cone than in the old box type. Some years ago, in the laboratory of the School of Mines, Columbia University, I introduced the use of inclined baffle-plates for box classifiers and conical baffle-plates for cone settlers, so arranged as to prevent the formation of these overturning currents. These baffle-plates have been successfully used in practice and have been found to increase the capacity of the settling-tanks, both rectangular and conical, as well as to produce a more uniform product. Similar baffle-plates have recently been used at the Sons of Gwalia mine in Australia and at the Kyloe copper mines, New South Wales. In these instances a very large number of baffle-plates are used, many more than are needed for the purpose. Inclined baffle-plates not only prevent the formation of overturning currents, but also promote the settling of the material. The particles as they fall tend to leave the swifter moving current and fall into the slower-moving portion, which is retarded by friction on the surface of the baffle-plates. The settled material slides down the plates in this slow-moving current until it reaches the discharge openings at the bottom. In the use of the conical baffle-plates that I designed, the descending current is gradually throttled by diminishing the openings in the conical baffles, and the overflow current at the top is maintained of uniform velocity by gradually enlarging the space between the upper edge of the conical baffles and the surface of the water.

Separation of Sand from Slime.

The separation of sand from slime is a problem arising frequently in concentrating mills for the separation of material for re-crushing, for facilitating the work of sand classifiers, and to divide at once material going to slime treatment from that to be treated on jigs or sand tables. It is also necessary when conditions make the separate handling of sand and slime tailing desirable. The separation of sand and slime can be effected by the use of screens, classifiers, jigs, and tables, and by mechanical appliances and de-watering devices designed for the purpose. Small settling-cones are frequently used for the preliminary separation of sand from slime-settlers and slime treatment. The addition of baffle-plates to such cones makes this separation more perfect and prevents the entangled slime finding its way to the sand-classifiers and sand-concentrators. The Caldecott cone is used in South Africa to separate sand from slime, the sand going to tube-mills and the slime to cyanide treatment. An improved cone designed by W. G. Mosher has been generally adopted in the Butters plants. This consists of a cone with a large inner cylinder prolonged as a cone to near the bottom, the annular space between the two cones being ½ to ⅝ in. The feed enters the outer cone and the overflow is discharged by a spout from the inner cylinder passing through the wall of the outer cone. A longitudinal vertical partition is placed in the cylinder to prevent eddy currents, which may be produced by the spigot discharge. The rising current in the cylinder is of low velocity and free from bubbles. It is stated that by the introduction of this cylinder the capacity of the cone has been doubled in spite of the small discharge exit from the inner cylinder. Mechanical sand and slime separators are for the most part modifications of the well known Dorr sand-classifier and are designed to elevate the sand from a large settling-tank by mechanical means. In the Dorr classifier this is done by a reciprocating mechanism carrying a number of scrapers. In the Akins classifier this is replaced by a revolving frame carrying a continuous helical scraper blade. In the Esperanza-Federal machine the scraping blades are attached to an endless chain. The Argall classifier contains two helical screw conveyors of long pitch and moderate diameter which raise the sand from the bottom of a conical settler with overflow at the circumference. Fnally, there are several different types of shovel de-waterers in which the sand is raised from a tank by a vertical or inclined wheel carrying scoops or shovelling blades. In the Federal mill at Flat River, Missouri, Mr. Guess has adapted the principle of the Esperanza drag to the delivery of tailing even from the jigs. This permits cleaner table and vanner work and economises water.

MINING MEN AND MATTERS.

Mr. H. H. Webb has returned to the Rand.

* * * *

Mr. Percy Marsden, Chairman of the Montrose D.M. Co., is visiting the Rand.

* * * *

The annual meeting of the Mine Managers' Association took place yesterday at the Chamber of Mines. A full report of the proceedings will appear in our next issue.

* * * *

Mr. H. G. Nitch, manager of the Meyer and Charlton mine, has been transferred to the Cinderella, Boksburg. Mr. Girdler Brown, from the Cinderella, is taking over the Meyer and Charlton.

* * * *

The prizes awarded on the results of the evening class examinations, held at the South African School of Mines and Technology, were distributed last Friday week, when a large gathering assembled at the school. The function was mainly social in character, and Mr. H. J. Hofmeyr presided. The prizes were presented by the presidents of the societies which gave them. Mr. Warriner presented those given by the Association of Mine Managers; Mr. Yule those given by the South African Institution of Engineers; Mr. W. R. Dowling represented the Chemical, Metallurgical and Mining Society; Mr. J. W. Kirkland the South African Institute of Electrical Engineers; while Mr. Waldie Pierson distributed the law prizes. In each case the gentleman made a short speech congratulating the successful students.

* * * *

The next monthly meeting of members of the Geological Society will be held in the Council Chamber, Chamber of Mines, on Monday evening, the 24th of February, at 8.15. The following papers will be open for discussion:—"The Occurrence of Sideroplesite and Ankerite in the Cassiterite Lodes at Rooiberg," by David P. McDonald, M.A., B.Sc.; "Note on the Origin of the Iridosmine in the Banket," by R. B. Young, M.A., D.Sc. (Edin.); "Contribution to the Aqueo-Igneous Solution Theory of Rock Magmas," by E. H. L. Schwarz, A.R.C.S.; "A Traverse through the Northern Portion of the Mazoe District of Southern Rhodesia into Portuguese Territory," by P. A. Wagner, D.Eng., B.Sc., M.E.; "Note on a Composite Dyke from the Klipriversberg," by David P. McDonald, M.A., B.Sc.; "Notes on the Vertical and Bedded Veins of Pilgrims Rest," by A. von Dessauer, M.E. (Frib.S.); "Negative Spheroidal Weathering and Jointing in a Granite of Southern Rhodesia," by P. A. Wagner, D.Eng., B.Sc., M.E. The following papers will be read:—"Structural Features of the Western Witwatersrand," by E. T. Mellor, D.Sc. (Lond.); "Notes on the Sea Point Granite-Slate Contact," by E. H. L. Schwarz, A.R.C.S.

CONTINUOUS DECANTATION v. FILTRATION.

A Plea for a Middle Course.

(By H. St. J. Brooks.)

In last week's issue of this paper there appeared an article under the heading, "The Future of Slime Treatment." After quoting at some length the opposing views of two leading American metallurgical periodicals, the article concludes by supporting the opinion of the San Francisco *Mining and Scientific Press* that filtration has come to stay, and adds that "whatever may be said in favour of decantation it seems altogether improbable that in the Transvaal and Rhodesia the filtration of slime will be superseded by variations of the methods of other days." Between the opposite views of the *Engineering and Mining Journal* and those of the *Mining and Scientific Press*, may it not, however, be possible to steer a middle course? While frankly admitting the fact that filtration is a necessity for certain ores, it nevertheless seems to the writer that for many others continuous decantation, supplemented when necessary by a final dewatering on a rotary type of filter, has a distinct future before it. In metallurgy, as in every other field of endeavour, there is a general tendency to follow the prevailing fashion. A new process, a new machine is introduced; at first it is eyed askance, then some well-known mine takes it up, it is proved successful, and it immediately becomes the panacea for all imaginable metallurgical ills. This, in itself, tends to bring about a reaction, and just as even the Pachuca tank has reached its zenith and is now slowly giving way to other forms of agitators, so there is beginning to be observed in the United States, the home of vacuum filtration, a reaction against the idea that filtration is essential in all cases to the modern slime plant. It may be granted that for those ores where the greater part of the values are locked up in the sulphides, for high grade ores and those requiring treatment with extra strong solution, filtration is necessary. But where the bulk of the precious content is present in the silicious part of the ore, and especially for low-grade ores requiring only moderately strong solutions for beneficiation, I think there is a wide field for the continuous decantation process.

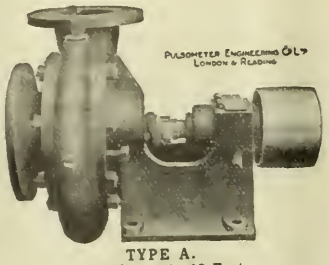
The writer of the editorial in the *Mining and Scientific Press* deals with the question from the standpoint of the all-sliming mill alone; but it must not be forgotten that not every mill, even nowadays, is an all-sliming one. Indeed, there are already signs of a reaction against the too prevalent employment of all-sliming as opposed to fine grinding. The writer is one of those who agree with E. M. Hamilton, Stuart Browne and others, that many ores now being all-slimed in deference to the prevailing fashion would give a better commercial extraction by milling to round 100 mesh, separating the sand from the slime and treating both products independently. As a case in point, the management of a gold mine in the Orient which all-slimed its ore was considering the installation of an additional twenty stamps and two tube-mills in order to increase the mill tonnage. A little laboratory investigation (which, of course, ought to have been done before the mill was designed) revealed the fact that the sands at 100-mesh gave a very good extraction by leaching, and the bulk of the values lay in what may be termed the natural or colloidal slime as opposed to those granular slimes produced by finer comminution of the 100-mesh product. It was therefore decided to crush with much coarser screens, separate out the sands at 100-mesh, and leach these in a sand plant erected at a trifling cost compared to that of twenty additional stamps and two tube-mills. To my mind, the ideal treatment of a low grade, oxidised, non-complex ore is that of coarse stamping, tube-milling to round 100-mesh, amalgamation after the tube-mills if necessary, classification, leaching of the sands and continuous decantation of the slimes through Dorr thickeners, finishing with some simple continuous dewaterer of the rotary type. Undoubtedly it would be far simpler to dispense entirely with the final filter treatment, particularly as there seems every reason to suppose that even operators of the continuous rotary type of filter will have to pay the Moore Filter Co. royalty for some years to come. But, save where it is possible to mill with very weak solutions, the mechanical loss of cyanide where no filter is employed is bound to be high, amounting to over 1s. per ton in the most favourable cases. By using weak solution running ·04 per cent. K.C.N., or less, as a dilutent in the final thickener, and returning the effluent after precipitation to the battery storage tank, mechanical loss of cyanide would be kept as low as possible, while by stamping in a very weak cyanide solution through a coarse mesh, and only bringing the solution up to full strength in the tube-mill circuit after return of the excess solution to storage, not only would the amount of solution requiring precipitation be considerably diminished, but the bulk of the values could still be brought into solution ahead of the agitators, and yet neither the gold content of the battery solution nor the cyanide titration of the same solution when precipitated for use as a final dilutent would show any tendency to climb. Of course, such a scheme, requiring two classification circuits, would necessitate the employment of double the usual number of classifiers and also of an extra thickener.

To sum up. In the writer's opinion, the slimes of very many gold ores may be successfully treated by a combination of continuous decantation with some form of continuous rotary filtration. A smaller proportion of ores will give good results with the same process even after dispensing with a final filtration. On the other hand, most silver ores, and high grade and more or less refractory ores which require prolonged agitation are best treated by filtration with a discontinous filter of the leaf type. Even then, however, it is advisable to remove the greater part of the precious content by preliminary thickening and dilution with barren solution. Though installed in a very large percentage of the latest Mexico-American mills, like the Nissen stamp, the Dorr thickener has been slow to find much favour on the Rand. Again, like the Nissen stamp, it has been left for Rhodesia to be the first South African field to adopt these machines for new installations. The working of the thickeners installed at the Globe and Phœnix and at the Shamva will be watched with interest, and should they fulfil expectations, perhaps in a little while they will become as common on the Rand as vacuum filters or Pachuca tanks. In view of the foregoing, perhaps a short description of the Dorr thickener may not come amiss. The machine consists of a shaft suspended vertically in a flat-bottomed wooden or steel tank, from 20 to 35 feet in diameter and from 8 to 10 feet in depth. The shaft carries at its lower end radial arms fitted with pieces of angle iron in such a manner that when it is slowly rotated by means of a worm gear, the settled slime is gradually moved to the discharge valve in the centre. The clear solution overflowing at the top of the tank is drawn off by an annular launder. The shaft revolves at from five to six revolutions per hour, and can be fitted with equipment for raising the radial arms clear of the settled slime in the event of a shut down. As, however, the installation of such a device means losing from 5 to 7 feet head room, and the power required to drive the machine does not exceed 1/6 h.p., in those countries where unskilled labour is cheap it is advisable to have the shaft rotated by native labour during the period of shut down. In such countries as the United States, however, where it is not uncommon to have a cyanide plant treating 150 tons of sand and slime per day run by only one man per shift, a lifting device is essential. The machine will discharge a thickened slime containing as low as 40 per cent. moisture,

but in continuous decantation it is not advisable to pull a slime containing less than 50 per cent. moisture, owing to the difficulty that might be experienced in obtaining a perfectly homogeneous mixture of the thickened slime and the added dilutent. I have found it advisable to fit a jet of compressed air to the outlet in such a manner that if it clogs, as it sometimes does when discharging a thick slime, the valve may be cleared. Needless to say, the air must be used with discretion, as the slime in the thickener is disturbed and tends to make muddy the clear overflow. In any case, it is advisable to run the overflow through some sort of clarifier, as in a plant where there are several thickeners it is easy for one to receive a little more slime than is drawn off from it. In course of time the thickener gets overloaded, and if it starts to overflow muddy at three o'clock in the morning, when the shiftman is busy somewhere else, that shiftman is out of a job, and the smelter has more mud than gold slime to smelt at the next clean up. For this reason not only should a sand filter or clarifying press be always employed, but it is advisable to fit each thickener near the top with a 3 ft. gauge glass similar to those provided on boilers. Then it is an easy matter for the shiftman every time he passes to observe if the glass is clear or not, and if slime appears in the gauge to take the necessary measures to lower the slime level of the thickener in question.

One other point. Harpooning on night shift for a sack or other foreign body that has stuck in the outlet of a thickener demands skill, patience and luck. Therefore, it is as well to have the machines covered with ordinary wire netting. Again, sometimes one is troubled with an excess of foam or scum forming on the surface of the thickeners. This scum, which is often due to excess of alkalinity, tends to be carried over into the discharge launder and render the overflow muddy. A simple remedy is to withdraw every alternate bolt from among those holding the inner rim of the iron overflow launder in place. This lowers the level of the solution a few inches, and while the clear overflow escapes through the bolt holes, the foam is kept back by the edge of the launder, till it finally sinks of its own weight.

CENTRIFUGAL PUMPS



High Efficiency

Low in Price.

TYPE A.
For Lifts up to 40 Feet.
Ask for List No. 556.

WHY WASTE POWER?

This Pump is especially designed for Lifts up to 40 Feet. It has an extremely high efficiency and takes up much less power than the ordinary Centrifugal Pump.

Pulsometer Engineering Co. Ltd

LONDON:
Offices—
11, Tothill Street S.W.

READING:
Works—
Nine Elms Iron Works.

Agents for the TRANSVAAL.

HARVEY & Co. Ltd., JOHANNESBURG.

Messina Copper.

The results of January operations at the Messina (Transvaal) Development Company's property are as follows:—The mill ran twenty-six days and treated 2,018 tons of ore, producing 392·73 tons of concentrates, having an average assay value of 43·2 per cent. copper, and 271 tons of middlings average value 14·4 per cent. Development accomplished, 627 feet. The new hauling shaft (No. 5) is now down 207 feet. Fifth Level No. 1 west raise for 50 feet average assay value 13·3 per cent. Seventh level main cross-cut to footwall showing bornite. Eighth level No. 2 west winze on footwall for 55 feet average assay value 12·9 per cent. copper. No. 6 winze below eighth level for 14 feet down, average assay value 14 per cent. copper. All assay values calculated over a width of 60 inches. The foundations for the new mill building and ore bins are completed, and the frame work is in course of erection.

Main Reef West.

The quarter working profit was £19,287 (7s. 1·347d. per ton). Ore crushed 52,396 tons, working revenue £78,542 (29s. 11·763d. per ton), working expenditure £59,254 (22s. 7·416d. per ton), capital expenditure, £11,243. The development amounted to 2,610 feet. Excluding main cross-cuts, ore passes and prospecting work, 1,740 feet or 71·9 per cent. has been on leader or leader and Main Reef combined, and of this 1,659½ feet have been sampled. Of this 763 feet, or 46 per cent., has been payable of an average value of 7·5 dwts. over 48 inches. And 896½ feet, or 54 per cent., has been unpayable of an average value of 3·4 dwts. over 48 inches. The ore reserves as at September 30, 1912, amounted to 673,050 tons; ore developed for the quarter 51,590 tons; total 724,640 tons; less ore mined for quarter, 60,233 tons; less difference in stoping width, etc., 2,833 tons; ore reserves as at December 31, 1912, 667,240 tons. Shaft sinking.—No. 5 shaft: 160 feet have been sunk and timbered in this shaft, making a total depth to date of 3,652 feet. In addition, 16th level station has been cut, and also waste bins at 11th and 13th levels. No. 4 shaft: 83½ feet have been sunk and timbered, making a total depth to date of 3,699 feet.

Bantjes Consolidated Mines.

The following is the report for the quarter ending December, 1912:—

Revenue, £109,031, or £1 8s. 3d. per ton from 77,100 tons milled; cost, £90,176, or £1 3s. 5d. per ton; profit, £18,855, or 4s. 10d. per ton. The development footage accomplished showed an improvement of 216 feet for the quarter, and further increase may be anticipated during the current quarter. The main (central) incline shaft was continued, and 113 feet of sinking accomplished. This shaft has now reached below the 15th level, and sinking has been discontinued for the present to allow of concentration of efforts on lateral development on the 7th to 15th levels, inclusive. The 6th level main drive has holed to the west shaft. This will be served by animal traction, and will give control of all ore mined at the western end of the mine for transfer to the main shaft. The South Reef disclosures for the quarter have continued satisfactory, but the disclosures on leader have not been as good as in the two previous quarters. The development suspense account shows a further credit of £5,825 for the quarter, giving a total of £19,142 to the credit of this account at the end of the financial year. This reserve has been accumulated to cover the reduction in the payable reserves during the last two years while the major portion of the dead work of shaft-sinking and cross-cutting was in hand. Now that this is mostly accomplished to the plane of the 15th level, the reserves should begin to show substantial increase. No estimate is given of the payable tonnage developed for the half-year, as the annual report to be issued in April will state this information for the whole year, together with particulars of the ore reserves on hand. The working costs show a reduction of 5d. per ton milled for the quarter; but, owing to a reduction in the yield recovered, the profits are £2,427 less. The turbo air compressor has been at work regularly, and proved satisfactory. It has materially improved the compressed air position and assisted towards a reduction in the cost of development. Development work has, as a consequence, been recommenced in the eastern and western sections of the mine. There is a credit on capital account for the quarter of £26,727, made up as follows:—Cost of air compressor charged to Rand Mines Power Supply Co., Ltd., in terms of agreement, £24,547; net proceeds of Fleurla stands sold, £1,668; less expenditure on new construction for the quarter, £1,48—£26,727. A balance of £508 remains to be expended on account of authorised work. Estimates are in hand for the new hoist at the central shaft, referred to in the last quarter's report, and an investigation into the matter of the addition of a fourth tube-mill is receiving consideration.

Rhodesian Section.

LATEST MINING NEWS.

Transvaal and Rhodesian Estates—The Chicago Gaika—Tributing the Inez— Interesting Salisbury Lawsuit—Rezende's Returns—The Cam and Motor—The Agnes— Rhodesian Railway Earnings.

The directors of the Transvaal and Rhodesian Estates issued the following statement in mail week regarding a new property which their Rhodesian office had then just acquired: Two blocks of ten claims each, known as the N'Gola blocks, situated close to the Fred mine, had been purchased by the company, on the advice of Mr. Arthur Dickinson, for £300. He reported that, quite apart from two reefs outcropping on the claims, there were many thousands of tons of rubble on that property which could be treated at a total cost of 6s. per ton.

* * * *

The reports and accounts of the Chicago-Gaika Development Co. for the year to June 30, 1912, show that the company has substantial share interests in the Gaika Mine and the Connemara Mine, concerning which satisfactory reports are incorporated. Its profit and loss account shows a credit balance of £13,399 2s. 5d., which, added to £1,907 5s. 10d. brought forward, makes a total credit of £15,306 8s. 3d. Of this amount the directors have written off £356 4s. 11d. against income tax, and £13,000 off the property and outlay account, leaving a balance of £1,950 3s. 4d. to be carried forward.

* * * *

Mr. F. Harrill, the latest tributor of the Inez, in the Hartley district, has now removed the old headgear, which for a long time has been a conspicuous landmark in that part of the district, and work has been started on the alterations to the main shaft. It is intended to do away with the 50 feet vertical portion of the shaft, which hitherto hampered operations, and has been a source of considerable expense, and make the whole shaft an incline. Mr. Harrill intends installing a gas suction plant to run the 10-stamp mill.

* * * *

The sitting of the High Court for civil business, following the criminal sessions, which lasted over a week, began on Thursday of last week, in Salisbury. The next two days of the sitting were occupied with the hearing of an action brought by Mr. R. R. Hollins and the Associated Mines of Rhodesia against Mr. Harold Fraser Roche, formerly the agent of Mr. Hollins in Rhodesia, and afterwards manager of his company. Considerable interest was taken in the proceedings by the mining community, and the importance of the case may be gauged from the fact that the *Herald's* report of the two days' hearing extended to over twelve columns. The case alleged against Mr. Roche is that, in breach of agreements with Mr. Hollins and his company, he obtained an interest in various mining properties unknown to them, and also undertook reporting on mines on his own account without their knowledge. These alleged agreements Mr. Roche denies. The plaintiffs are claiming an account of all the profits and fees earned by the defendant. Mr. Roche also counter-claims for £2,500 for commission on the sale of the Planet mine. The case for the plaintiffs concluded on Saturday, and stands adjourned until the return of a commission issued last December for taking the evidence of Mr. Roche and his witnesses in London. The further hearing will probably not come on until next June.

* * * *

The following official details of the December output of the Rezende Mines are published:—Rezende section: Estimated value of the yield, 18s. 10·98d. per ton; working expenses, 24s. 9·24d. per ton; estimated profit after deducting London expenses, £829, equal to 4s. 1·74d. per ton; add revenue from tributors, £510. Penhalonga section: Estimated value of yield, 18s. 3·937d. per ton; working expenses, 15s. 4·837d. per ton; total profit, £936, equal to 2s. 11·100d. per ton; total estimated profit, £2,275. Office note: In the Penhalonga section—as the account already charged for redemption of development now covers the valuation of the ore reserves as taken over from the Penhalonga Company—it is not intended to include any redemption of development charges in future in making up the working costs of that section, nor has such charge been made in the December costs.

* * * *

The following is an official summary of a report which was recently despatched to the Board of the Cam and Motor G.M. Co. by mail:—Motor mine—No. 5 level: Crosscut east 105 ft. south of No. 1 shaft extended 13 ft., total 134 ft. Crosscut west 330 ft. south of No. 1 shaft, extended 21 ft., total 27 ft.; values average 8·3 dwts. The values from 21 ft. to 24 ft. average 18 dwts. Winze at No. 1 shaft sunk a further 21 ft., total 132 ft.; values over the 21 ft. average 7·2 dwts. over 89 ins. No. 6 level: Main south drive advanced 55 ft., total 272 ft.; from 247 ft. to 272 ft. average value 8·4 dwts. over 89 ins. The last two sections sampled at 165 and 170 ft. averaged 11·2 dwts. and 10·2 dwts. over 60 and 58 ins. respectively. Crosscut east, 105 ft. south, extended 6 ft., total 30 ft. Values at this section of the mine stand at 6 dwts. over 29 ft. 7 ins. Cross east, 155 ft. south, extended 7 ft., total 26 ft.; values for the 7 ft. extended average 4·5 dwts. Rise at 155 ft. south risen a further 20 ft., total 28 ft.; values for the 20 ft. average 6·9 dwts.

* * * *

It is expected that the stamps at the Agnes mine will be dropped on the 1st prox. Mr. P. S. Triggs is the owner. This huge property—400 claims—is only a mile and a half from Gatooma. The plant is quite new, and consists of a 5-stamp gravity mill by Fraser and Chalmers, crusher, engine, boiler and hauling gear complete. A cyanide plant is now on order, and will be erected by the time the tailings have accumulated sufficiently for its use.

* * * *

The following table shows the approximate receipts of the Rhodesian railway system—The Beira and Mashonaland Railways, the Lomagunda and Eldorado branches, the Rhodesia Railways (Southern and Northern extensions, including branches), the Mashonaland Railways (Kalomo to Broken Hill), and the Blinkwater and Mazoe Branches—for the month of November and the twelve preceding months:—

1911.	B. & M. £	L. & E. £	R.R. £	M.R. £	B B. £	Mazoe £
Nov.	47,766	1,715	91,005	12,150	513	—
Dec.	39,640	1,736	82,177	9,044	399	—
1912.						
Jan.	43,853	1,159	81,600	9,287	499	265
Feb.	46,775	1,135	75,652	6,254	384	142
March	44,097	1,351	77,307	6,645	385	220
April	40,322	1,709	73,330	4,967	454	247
May	34,939	1,660	77,452	5,740	521	242
June	34,891	1,769	75,214	4,685	488	250
July	38,305	1,826	84,203	6,343	659	579
Aug.	46,014	2,157	88,529	8,093	761	934
Sept.	48,044	2,354	79,372	7,034	649	1,199
Oct.	47,531	1,500	97,012	11,332	722	536
Nov.	49,963	1,635	99,317	13,907	592	562

Correspondence and Discussion.

Comments on Questions Arising in Technical Practice or Suggested by Articles in the Journal—Views, Suggestions and Experiences of Readers.

Labour and Diamonds.

To the Editor, *South African Mining Journal.*

Sir,—In your last issue you say, regarding questions put in Parliament, mostly by Labour members: "Not all of them have been as unintelligent and meaningless as that of the Labour light who wanted the returns of cut diamonds imported into the Union—what earthly use the figures were not even the questioner could tell!" Well, of course, he wasn't asked, but if he had been, say, by yourself, he might have desired you to suppose that the existing *ad valorem* import duty on cut stones enables a local cutter to capture something of the Union jewellery trade—for the question included cut diamonds mounted—and to know the possible extent is important. One must come down at times to the level of these meaner intellects. If I may quote Wordsworth in a technical journal:

"Wisdom is ofttimes nearer when we stoop
Than when we soar."

Even you, sir, cannot give this information unless you now ask it of the "Labour light."—Yours, etc.,

H.

[Our point was that, even if the value of the cut diamonds mounted could be ascertained, the questioner ought to have known that the figures could have no material bearing on the larger problem of a diamond cutting industry.—Ed., *S.A.M.J.*]

The Miner as Critic.

To the Editor, *South African Mining Journal.*

Sir,—Having read the letters of your correspondents re personnel of mine bosses and officials, and the criticisms to which underground workers on the Rand are subjected, I fancy the standard of efficiency by which all are judged is far too high. A mine captain or shiftboss should possess the qualifications of a mining engineer; technical, theoretical and scientific knowledge, tested and proved for oneself in the field of practical work. But such a personality can command more congenial and more remunerative employment than that of shiftboss or foreman—as a contractor-miner even. Rand present systems aim at specialisation. A hammer man is confined to hammer work, machine developer to his own sphere, shaftmen to shafts, a pumpman is a fitter, a timberman a carpenter, and you must stick to it, for the officials are guided by the discharge note. How, then, is the average miner to acquire the knowledge necessary to direct other men? This specialisation is directed by the various groups. My experience of underground bosses is that they are very fair, and give and take a good deal in the actual methods of work. But contract prices, conditions of work, and mining regulations are veritable bugbears. When a miner's boss becomes a trap and a spy instead of a sympathetic friend and adviser in dangers and difficulty the result is discord, unpleasantness and inefficiency. The trend of present conditions is in this direction. A miner cannot work as a mechanic can, with mechanical and mathematical precision. Rock texture varies in the same stope, the best brands of explosive vary, the diameter and depth of borehole are other factors, hence a margin of safety for burden must be allowed (we are excluding absurd holes); if these considerations were appreciated by both sides it would eliminate a deal of friction. The new contract gives power to a shiftboss to dismiss a contractor for inefficiency. This is a clause likely to cause trouble.

Another improvement would be made if the stope plan were made continuous, then a miner who worked six months in the same stope—holing three boxholes and three manholes—would approximate his measurement, as he knows length of "lift." At present a miner is given a new stope plan of the same stope monthly; this entails more work for the surveyor. Another improvement would be the use of a standard planimeter. Seeing the new contract is brought to us for the expressed desire of standardisation it is an anomaly that this point should be overlooked. There are several other suggestions which would smooth matters, had the houses consulted some of the contractors in the framing of the "new contract." That friction will come is evident, and many of us who are steady workers will be forced to become casual workers. Apropos of this, it is told of a miner, who was looking for work, that he produced his discharge with periods of work from a week to a month. The mine captain said: "I don't want monthly men here." The other replied, "Why, the mine captains are monthly men now." This brought the reply, "You're right, young fellow; you can sign on."—Yours, etc.,

L. P. SHERIDAN.

Mill Site, Randfontein Central,
February 17, 1913.

"The Jumpers" G.M. Co.

The following is a resume of operations during the quarter ended the 31st January, 1913:—Ore mille during quarter, 17,900 tons; yield per ton milled £1 19s. 0.83d.; working costs per ton milled, £1 16s. 1.00d.; working profit per ton milled (£2,672 15s. 11d.), 2s. 11.83d. 9.701 tons of accumulated slimes and sands were treated during the quarter. The yield was 11s. 0.60d. per ton treated, while treatment costs amounted to 4s. 10.41d., thus leaving a profit of 6s. 2.19d., or £2,999 2s. 5d.. The summary of joint profit for the quarter is as follows:—Profit from mine, £2,672 15s. 11d.; profit from accumulated slimes, £2,999 2s. 5d.; total profit for quarter, £5,671 18s. 4d.; which has been dealt with as follows:—Handed over to the Treasury Gold Mines, Limited, in settlement of their share of the profit, £2,055 5s. 3d.; set aside in terms of agreement with Treasury Gold Mines, Ltd., £1,068 8s. 5d.; appropriated by this company, £2,548 4s. 8d.—total, £5,671 18s. 4d. The company owns freehold rights over its claim area. The following is a list of the Company's share investments on the 31st January, 1913.—102,700 £1 shares Benoni Consolidated Gold Mines, Limited; 45 £1 shares Geldenhuis Deep, Limited; 290 £1 shares Witwatersrand Native Labour Association, Limited (12s. per share paid); 118 £10 shares Rand Mutual Assurance Company, Ltd. The following was the financial position of the Company on 31st January, 1913:—Cash position, after providing for all liabilities, £4,873 19s. 4d.; cash assets, viz., stores and materials, sundry debtors, payments in advance, etc., but exclusive of share investments, £5,138 6s. 8d.; loan on mortgage to the Benoni Consolidated Gold Mines, Ltd (exclusive of interest from the 1st April, 1912), £8,333 6s. 8d—total, £18,345 6s. 8d.

High Mining Salaries

EARNED by those holding Mining Certificates as Mine Managers, Foremen, Surveyors, Mechanical and Electrical Engineers and Engine Drivers. Private Individual Tuition and Correspondence Lessons where personal tuition is impossible.—E. J. MOYNIHAN, Consulting Engineer, 35 and 36 Cuthbert's Buildings; Box 2061.

THE WEEK IN THE SHAREMARKET.

Quiet and Waiting—European Outlook Still Doubtful.

The ominous European situation still overshadows all markets, and until the clouds pass no activity is to be expected. That the situation is strained and complicated the cables clearly show, and the long-feared aftermath of the Balkan War has now to be faced. It would be idle to enter into any review of the position of the South African market while it remains the prey of outside influences of this sort, and beyond recording the stagnation level of prices for the week, nothing remains to be said.

	* Friday, 14th.	* Sat., 15th.	* Mon., 17th.	* Tues., 18th.	Wed., 19th.	Thur. 20th.
African Farms. ..	17 6	17 0	17 0	16 6B	16 9	19 9B
Apex Mines ..	26 0	25 6	25 3	24 3B	25 0	24 6B
Aurora West Uniteds	—	10 6B	—	—	—	10 0B
Bantjes Consolidated	23 6B	—	—	22 0B	22 0B	23 0B
Benoni Consolidated	3 10B	3 10B	3 9B	3 6B	3 6B	3 7B
Blaauwbosch Diam.	97 6B	97 6B	97 6B	—	*96 0	*96 0
Brakpan Mines ..	83 6B	83 0B	—	—	—	—
Breyten Collieries..	—	32 0S	30 0B	—	30 0B	31 0B
British S.A.. ..	26 0B	26 0B	—	25 0B	—	24 0B
Bushveld Tins ..	0 11B	1 0S	0 10B	0 9B	0 10B	—
City & Sub. (£4) ..	47 0	46 6	45 6B	45 9	45 6B	46 6S
City Deep	64 3B	64 3	63 6B	63 6	62 6B	64 3
Cloverfield Mines ...	6 11	6 8	6 7B	6 4	6 6	6 4B
Clydesdale Colls. ..	8 6B	—	8 6B	8 6B	8 6B	—
Cons. Langlaagtes	29 6S	29 0B	28 9B	28 6B	28 6B	28 9B
Cons. Main Reefs..	19 6B	19 9	19 3	*19 0	19 0B	19 6B
Cons. Mines Select	—	—	14 0S	12 0B	—	—
Coronation Colls. ..	17 0S	—	—	—	—	—
Coronation Freeholds.	0 8S	—	—	—	0 7S	0 9S
Crown Mines ..	—	—	—	—	—	141 3B
East Rand Centrals	10 9	10 6B	10 9B	10 6B	10 6	10 3B
E. Rand Coal (2/6) .	2 1B	2 1B	—	2 1B	2 1B	2 1B
East Rand Deeps..	—	2 8B	—	—	2 6B	—
East Rand Debs...	£92½	£93	—	—	£92½B	£92½B
East Rand Props.	56 0B	—	—	—	56 6B	57 0
Eastern G.M. (1/-) .	2 0B	2 0B	2 0B	2 0B	2 0B	2 0B
Frank Smith Diam. .	11 0B	11 0B	11 3	10 6	11 0	11 0
French Rands ..	—	2 0B	2 0B	—	—	1 0B
Geduld Props. ..	—	22 6B	20 0B	22 6	22 0B	22 0B
Glencoe(Natal) Colls..	—	—	6 0B	6 0B	6 3B	—
Glynn's Lydenburgs	—	23 0S	—	—	—	—
Government Areas	21 3	20 6B	20 6B	20 3B	20 9	20 9
Hex River Explor.	1 0B	1 0B	1 0B	0 11B	1 0B	1 1
Jupiters	11 6B	—	11 9S	—	10 6B	10 0B
Kaalfontein Dia. (2/6)..	0 4B	0 4B	0 5B	0 4B	0 4B	0 4B
Klerksdorp Props.	—	2 9B	3 0S	2 5B	2 5B	—
Knight Centrals ..	12 6B	12 6B	12 6B	12 0	12 6B	12 3
Lace Proprietary ..	4 1B	4 0	3 11	3 6B	3 10	3 8B
Lydenburg G. Farms	2 7B	2 7B	2 7B	2 6B	2 6B	2 6B
Main Reef Wests	18 0B	18 6B	17 9B	16 0B	15 6B	15 0B
Meyer & Charltons.	106 0B	—	—	—	—	—
Middelvlei Estates	1 3B	1 6S	—	1 3	—	1 2B
Modder B... ..	72 0B	72 0B	70 0B	70 0B	71 6B	—
Modder Deeps ..	36 0B	35 9B	35 6B	35 0B	—	36 6
Monomotapa Cons.	—	2 6S	—	—	—	—
Natal Navigation Col.	—	—	—	—	—	16 0B
New Boksburgs ..	1 3B	1 3B	1 3B	1 1B	1 1B	1 0B
New Eland Diam. .	30 0S	—	30 0S	—	—	—
New Era Cons. (5/-)	8 6S	7 9B	7 9B	7 6B	7 9B	7 9B
New Geduld Deeps .	2 9B	2 9B	2 9B	2 8	2 8B	2 7B
New Kleinfontcins	21 6B	21 0B	21 0B	22 0B	22 0	21 6B
New Modders ..	—	—	—	—	—	240 0B
New Rietfonteins	7 0	7 0S	7 0S	6 9	7 0S	7 0S
Nigels	—	—	17 9S	—	17 0S	—
O.F.S. & Trans. Dia. .	1 10B	1 11B	1 10B	1 8B	1 8	—
Paardekraal Estates .	0 6B	—	0 6B	—	*0 6	—
Potchefstroom Est.	—	—	1 0B	—	—	—
Premier Def. (2/6) .	—	—	—	—	—	230 0B
Premier Pref. (5/-)	170 0B	170 0B	170 0B	170 0B	170 0B	170 0B
Pretoria Cements ..	53 0S	52 6S	52 6S	52 6S	49 0B	51 0B
Princess	—	9 0S	—	—	—	—
Rand Klips . ..	—	2 0	—	1 6	1 9B	1 8
Rand Nucleus ..	3 0B	3 0B	3 0B	3 3S	—	2 11B
Randfontein Deep	—	5 6B	5 6B	—	6 3S	—
Randfontein Estates	30 6B	30 3B	30 0B	30 0B	30 0	30 0
Roberts Victors ..	—	42 6B	—	*42 6	—	—
Robinson Deeps ...	42 0S	—	42 0S	39 0B	—	38 6B
Rooiberg Minerals	34 9	34 3B	34 0	33 6B	33 6B	33 9B
Rood. Durban Deeps	—	—	—	—	—	21 0B
Roodepoort U.M.R.	13 6B	13 6B	—	—	—	—
Rose Deeps ..	60 0B	—	—	—	—	—

B Buyers. S Sellers. * Odd Parcels.

	Friday, 14th.	Sat., 15th.	Mon., 17th.	Tues., 18th.	Wed., 19th.	Thur. 20th.
Ryan Nigels ..	3 6B	3 6B	3 6B	3 6B	3 6B	3 6B
Sheba	5 6	5 0B	5 6S	†5 6S	†5 3	5 6S
Simmer Deeps ..	3 6B	3 0B	—	2 6B	—	—
S.A. Breweries ..	—	41 0B	41 0B	—	41 0B	—
S.A. Lands ..	4 3B	4 3B	4 2B	4 1	4 1B	4 2B
Springs Mines ..	15 0B	15 0B	15 0B	15 0	—	15 0
Sub Nigels ..	13 6	13 3B	13 0B	—	12 9B	13 3B
Trans. Coal Trust ..	47 6B	47 3B	47 0B	46 0B	46 6B	47 0
Trans. Cons. Lands	28 6B	—	27 6B	—	—	—
Trans. G.M. Estates	56 0B	—	54 0B	—	55 0B	57 0S
Tudors.	—	—	—	—	—	2 0S
Van Dyk Props. ..	—	—	—	—	—	2 6B
Van Ryn Deeps ...	24 0	23 6	23 3	22 0B	22 90	23 0B
Village Deeps ..	42 6B	42 0B	41 9B	42 0B	42 0	41 0B
Vogel Cons. Deeps..	2 0B	—	1 9B	—	—	—
West Rand Cons...	14 0B	—	14 0B	—	—	13 0B
West Rand Estates	4 0B	4 3	3 9B	4 3	4 3B	4 0B
Witbank Collieries	—	45 0B	46 6	46 3B	—	46 6B
Witwatersrand. ..	62 6B	62 6B	63 0B	63 6	63 6B	63 6B
Wit. Deeps ..	54 9	54 0B	54 0B	53 3B	53 0B	53 3B
Wolhuters	18 0B	18 6S	18 6S	17 6B	17 9B	18 0B
Zaaiplaats Tins ..	35 6B	35 6	35 0B	33 9	34 3B	34 0B

B Buyers. S Sellers. * Odd Parcels. † Ex Dividends.

Knight Central.

The following is the report for the quarter ending December, 1912 :—

At this mine a working profit of £14,248 (3s. 9.89d. per ton) was earned. Ore milled, 74,520 tons, working revenue £85,933 (23s. 0.76d. per ton); working expenditure, £71,684 (19s. 2.87d. per ton); capital expenditure, £8,988. The east shaft has been sunk 114½ feet in dyke to a total depth of 4,495 feet, or to within 12 feet of the proposed 16th level. One hundred and forty feet of sills have been put in to a depth of 4,448 feet. The west shaft has been sunk 47 feet in dyke to a total depth of 4,336 feet, and 220 feet of sills have been put in to a depth of 4,285 feet. A station has been cut at 4,272 feet down for a new 14th level. At the west shaft the thickness and effect of the Simmer dyke have been tested by means of a bore-hole from the new station at 4,272 feet, and from the information obtained therefrom it would appear that it has a thickness of 375 feet, a dip of from 62deg. to 76deg., and is responsible for a horizontal displacement in the reef of 590 feet. A main cross-cut started from the 4,272 feet level was 287 feet in at the end of the quarter, and, assuming the dip of the reef south of the dyke to be 30deg., it should reach the main reef in another 240 feet. Cross-cuts through the dyke have also been commenced from the 13th station at the west shaft, and from the 15th station at the east. The following are the results of the assays of the reef series as disclosed by the borehole core and reduced to true thickness :—Main reef 39 inches at 1.9 dwts., no partings to bastard reef, 27 inches at 2.0 dwts., then 11.7 feet parting to main reef leader, 3 inches at 0.3 dwts., then 7 feet parting to south reef 46 inches at 4.4 dwts. Development.—The development amounted to 2,687 feet. Exclusive of main cross-cuts, ore passes, and prospecting work, 1,910 feet, or 88.08 per cent. of the development work has been on reef. Altogether 1,890 feet have been sampled, comprising 850 feet, or 44.97 per cent., averaging 2.24 dwts. over 54.01 inches and 1040 feet or 55.03 per cent. averaging 6.87 dwts over an estimated stoping width of 59.95 inches. In this latter total is included 455 feet of main reef at 7.60 dwts. over 62.43 inches, and 585 feet of south reef at 6.25 dwts. over 58.03 inches. The ore reserves are being recalculated for the annual report.

Specimen copies of the *South African Mining Journal* can be had from our offices at 125, Salisbury House, London Wall, E.C.

WANTED.

Engagement by Civil and Mining Engineer, Certificated Mine Manager and Mine Surveyor, Transvaal. Several years Transvaal and Rhodesian Experience. Disengaged 20th February. Address "C.E.," c/o "South African Mining Journal," Box 418, Johannesburg.

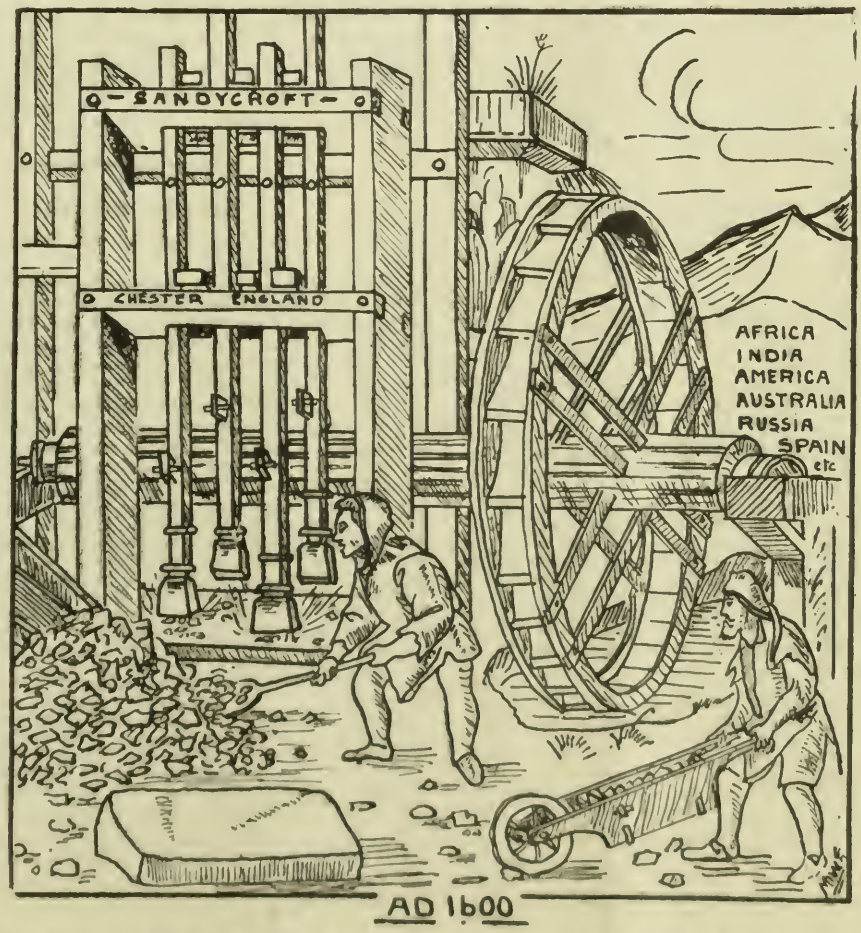
Sandycroft, Limited.

INCORPORATED IN ENGLAND.

JOHANNESBURG OFFICE: 63/4, Standard Bank Chambers.
'Phone 360. TELEGRAPHIC ADDRESS: "Sancroft." Box 1976.

Makers of Mechanical and Electrical Machinery.

MILL SPARES, etc., of all descriptions KEPT IN STOCK.



SINGLE and VARIABLE SPEED "CASCADE" MOTORS
for Winding. Compressing. Pumping. etc.

VARIABLE SPEED "CASCADE" Electric Locomotives.

AGENTS FOR: Messrs. Yates & Thom. Crossley's Gas Engines. Whitecross Winding Ropes. Coles Balata Belting. A. Pohlig. Aerial Ropeways. elevating and conveying machinery. etc.

Engineering Notes and News.

An Aluminium Solder.

The latest local invention is an aluminium solder, supplied by the United Metallurgical Co., of Stoytler's Buildings, Johannesburg, which is claimed to be the only easily fused and easily applied solder that will effectively join aluminium, either pure or alloyed, forming a homogeneous joint, practically as strong as and indistinguishable from the solid metal. There are solders on the market which require a heat which will nearly melt the articles to be united, with the result that oxidisation prevents thorough union of the metal, and if of any efficiency at all, require labour, skilled and educated, to their use. The United Metallurgical Company claim that their solder can be used by anyone who can use ordinary tinman's solder, simple precautions only being needed to obtain satisfactory results. The solder fuses readily at a heat obtainable with an ordinary soldering bolt, and joints may be made by this means, or with a blow-pipe, or by sweating together according to the nature of the work. Edges to be joined are to be filed or scraped clean, and heated to a temperature at which the solder melts. The edges should then be tinned by rubbing with a stick of solder or by working in the solder with an iron bolt, or the point of a heated file, then brought together; sufficient solder being run or worked into the joint, and allowed to cool slowly. An iron bolt or old file is preferable to one of copper, the latter being apt to discolour the solder. It will be found that this solder acts with aluminium in exactly the same way as ordinary solder on copper and black iron, and after aluminium has been tinned any metal may be joined to it with ordinary soft solder. No flux of any description should be used. Cleanliness and care in heating, with gradual cooling, being all that is required. We have inspected joints made by this solder; they appear to be thoroughly effective and almost indistinguishable.

Graphite Lubricants and Specialities.

Graphite has long been recognised as the best of all lubricating media, and scientists have for many years attempted, in vain, to render it soluble in oil. Its use has been restricted because of the impossibility of holding it in a fluid state. Some paste preparations have already been introduced for mixing in oil by the users, but these are unsatisfactory, as well as troublesome, in that they fail to retain the graphite suspended in the fluid, and so form a deposit and preventing uniform lubrication. Messrs. Selcraig's (Colonial), Limited, of 11, West Regent Street, Glasgow, and Goldreich Buildings, Johannesburg, have recently introduced on this market a complete range of their new Graphite Oils, which by an entirely new treatment hold graphite of the finest possible powder in a state of continual suspension. These oils sustain the graphite particles continuously in the oil, there is an entire absence of grit, and absolutely no deposit is formed. The lubricating quality is, therefore, the same throughout. Engineers will recognise the value of these points. Some of the advantages claimed for the Selcraig Graphite Oils are—they effect a saving of 75 per cent. in oil; are adhesive and therefore there is no waste; they are moderate in price; can be used for every class of mechanism; are not affected by high temperature; they insure freedom from hot bearings, friction is minimised, and effect power increased. Messrs. Selcraig's (Colonial), Limited, have likewise introduced their finest graphite, in powder form, guaranteed free from grit, for use on compressors, etc. They recommend the following test: Apply as much of the powder as can be carried on a shilling to the suction inlet of the compressor, and, they maintain, the whole question of the lubrication of that part of the machinery will be solved. Their Graphite Paste we refer to later on in this article. Their Graphite Paint, for chimney stacks and other surfaces exposed to great heat, claims the following advantages:—It dries very quickly, is not injuriously affected by acids or temperature; it preserves in a wonderful degree, and can be spread over a very large surface. We have been shown letters giving the names of a number of the large Home and Colonial users of these lubricants, and from whom repeat orders are now regularly received. Among others, one well-known gentleman in the engineering world at Home states:—" We have been using the Graphite Specialities for some considerable time, and the saving claimed in circular has been proved by our engineers. We use Graphite Cylinder Oils on all our large engines, Graphite Paste for our heavy steam rolls and locomotives; also for guide bars, pumps, and iron rolls where water is continually pouring we use the solution, which is the only lubricant for this work, water having no effect whatever upon it. For the high-speed engines we use the solution with a Hydro-Carbon Oil. Our engineer says that the Graphite has been eminently successful all over the works, and we have had no difficulty since we adopted it, especially with heavy drives and high speeds, such as centrifugals. We are also adopting the Graphite Paint for our large furnace chimneys, where the heat is intense and ordinary paint of no use." Another letter remarks that big tests at one of the largest engineering works in the United Kingdom have shown the Graphite Motor Oil to be the best of all lubricants for the Diessel engines, as after three months' running the graphite deposited greatly minimised the need for a lubricating oil, and the *carbonising* which always takes place with oils used in such high temperatures is almost entirely absent, so making for great safety and perfection in work. Another extract from a letter shown us states: " An experiment was lately made with Graphite

J.B. WHITE & BROTHERS PORTLAND LONDON

White's Best Imported
PORTLAND CEMENT.
In Large or Small Quantities.
H. A. NEAME, LONDON HOUSE, JOHANNESBURG. Telephone No. 341. P.O. Box 3921.

Oils, and it will especially interest you just now. After four months' perfect running with Graphite Oils the lubricant was withheld, and the engine ran for three days without any oil at all, and then began to protest—that is, the Graphite Skin which the oil had deposited in four months sufficed to run the engine for three days." In view of the advantages enumerated above, and the necessity at the present time on the mines for reduced costs and greater efficiency, managers and engineers on the Rand and elsewhere would be well advised to give these lubricants their consideration and investigation. Further information will be found in the advertisement on the front cover.

Finance, Commerce, and Industries.

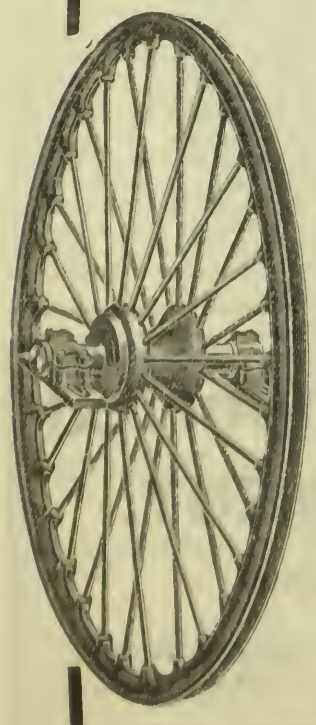
Natal Sugar Output.

At the annual meeting of the Natal Sugar Association this week the President stated that as a result of the drought on the south coast, the Natal sugar output during the past season aggregated only 96,000 tons, as compared with an estimate of 110,000 tons. During the coming season, given normal weather, the output would be from 115,000 to 120,000 tons.

* * * *

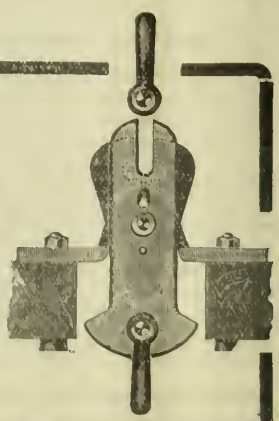
Natal Bank Annual Meeting.

The annual meeting of the Natal Bank, Ltd., was held last week. The directors' report, which was adopted, declared a dividend of 8 per cent., making provison for depreciation, and carrying forward £11,165 10s. The chairman congratulated shareholders on the expansion of the bank's business, and also referred to the desirability of establishing a Union mint, and, touching on the prospects of Natal, said the coal area was expanding with railway extension in Vryheid district, and new collieries were likely to be established in the near future. In his speech, the chairman said he had on previous occasions referred to the desirability of the Union Government establishing a mint. It was a curious anomaly that the richest gold-producing country in the world sends its raw gold across the seas for minting, and has to import its gold coins, paying freight, insurance, etc. Should Government not see its way to move in this important matter, some private member should. They had watched with grave and anxious interest the extraordinary growth of expenditure in the United Kingdom, and its effect on the value of British and Colonial securities. The fact that the Natal Bank had this year written down the value of their Consols by fifteen thousand was sufficient excuse for that reference to the subject. The sugar industry, one of the most important in Natal, had made a satisfactory advance. Despite the drought, the original crop estimate of 112,000 would only have to be reduced by 15,000 tons, and average prices had been very satisfactory. Mr. Davis commented on the difficulties under which the coal industry laboured, including the shortage of trucks, and increased cost of labour, owing to Rand recruiting. Reports of the mealie crop were of a conflicting nature. The wool industry, after fluctuating, was making rapid advance. The wattle industry had been greatly extended, ostrich farming was developing, and agricultural prospects generally were decidedly encouraging, and a gratifying feature of the recent industrial development was the extension of creameries in



Latest Improvements in

Headgear Sheaves



Haulage Brake Pulleys

Up to 25 feet in Diameter.

Mild Steel Built up Sheaves

Specially Suited for deep Mining, any Section or Load.

Safety Detaching Hooks *A Speciality*

Full particulars from: **THOMPSON & SOUTHWICK, LD.**

(Export Dept.) ENGINEERS,

Cables: "PULLEYS." **TAMWORTH, England.**

the Province, and by Natal companies in the adjoining Provinces. He saw no reason to doubt that South Africa will continue its career of progress and prosperity during the current year.

* * * *

A Trade Question.

In the House of Commons this week the Hon. Richard Denman, Liberal member for Carlisle, asked whether the British Trade Commissioner in South Africa had endeavoured to put Home manufacturers in direct touch with up-country storekeepers. If so, whether steps would be taken to prevent injury to large importing houses which hitherto had been supporting the storekeepers. Mr. Buxton replied that the question was evidently based on certain evidence before the Dominions Commission, but was based on a misapprehension. He had received a statement from Sir Sothern Holland pointing out the actual position as the reverse of what it was represented to be. If any specific case was brought forward in support of the evidence, he would be glad to meet it; otherwise he was confident witness would correct the erroneous impression. Sir Sothern Holland affirms that while always endeavouring to establish British trade in South Africa, he never missed an opportunity of emphasising the importance of manufacturers working through wholesale merchants.

* * * *

Union Trade Statistics.

The following is a summary of returns of the values of the imports and exports into and from the Union of South Africa for twelve months ended 31st December, 1912, compared with the corresponding period of 1911:—

IMPORTS.

Ports.	1912. (12 months.)	1911. (12 months.)
Via Cape Ports	£19,814,139	£18,891,215
Do. (parcels post)	732,775	644,596
Do. Natal	10,957,388	10,277,412
Do. Delagoa Bay	4,429,465	5,060,367
Do. Rhodesia	75,774	71,857
Total merchandise	£36,009,841	£34,945,447
Articles for S.A. Government	2,829,119	1,979,937
Specie	1,006,250	1,110,111
Gross totals	£39,845,210	£38,035,495

EXPORTS.

	1912.	1911.
Raw gold	£38,342,306	£35,064,344
Diamonds	9,153,316	8,281,907
Other S.A. produce	14,098,491	11,943,102
Total S.A. produce	£61,594,113	£55,389,353
Imported goods re-exported	1,380,106	1,634,647
Specie	298,524	284,214
Gross totals	£63,272,743	£57,308,214

* * * *

Freight Routes.

The Hull Incorporated Chamber of Commerce and Shipping has addressed a communication to the Johannesburg Chamber of Commerce, in which reasons are urged for a direct line of steamers from Hull to South Africa. It is urged that "Hull, owing to its close proximity and cheaper railway rates is the natural shipping port to a district or watershed of commerce containing a population of eleven millions, and comprising great centres of manufacturing industry." Comprehensive schedules as to railway routes, port rates, etc., by different routes have been supplied.

E. J. MOYNIHAN,

CONSULTING ENGINEER.

PLANS, SPECIFICATIONS, REPORTS AND ADVICE, MINING EQUIPMENT, STRUCTURAL WORK AND FINANCIAL ADVICE.

35 & 36, Cuthbert's Buildings, JOHANNESBURG. Box 2061.

Advertising S.A. Products.

The Commerce and Industries Department has completed arrangements for the supply of weekly consignments of fresh South African fruit to Trades Commissioner in London for exhibition in London, Berlin, Paris, and other centres. The first shipment was made last week. The Trades Commissioner has recently had an exhibition of South African products at the Royal Horticultural Society's Hall, Vincent Square, Westminster. Among the exhibits shown were minerals, cereals, maize cobs, berry wax, wattle bark, Soya beans, castor oil beans, bush tea, Natal tea, and asbestos. A still wider variety of produce has also been shown recently in one of the leading thoroughfares in Newcastle-on-Tyne, premises having been engaged for the occasion.

* * * *

The Property Market.

Messrs. Arthur Meikle & Co., Ltd., offered for sale by auction this week a number of properties, the following being the prices realised:—Portion of the farm Wildebeestefontein No. 233, district Heidelberg, in extent 750 morgen, on the Zuikerbosch River, two miles from Fortuna Station, at £4 per morgen, £3,000. Stands 111, 112, 113, 114, 115, 116, 117, 118, Rosettenville, with frontages to Bouquet, Zinnia and Daisy Streets, about five minutes from tram, at £14 each, vacant, £112. Stand No. 5049, corner of Loveday and Stiemens Streets, Braamfontein, vacant, £80; total, £3,192.

INVESTORS' DIARY.

The following company meetings have been announced:—

March 12.—Worcester Exploration Co., at Worcester, C.P.
March 18.—Cassel Coal Co.
March 19.—Anglo-French Coal Estates.
March 28.—Jupiter, Simmer Deep, Wolhuter, Bucks Reef.
July 15.—Transvaal Consolidated Lands.

TO CONTRIBUTORS.

The Editor invites Contributions on any subject of interest relating to mining and other industries of South and Central Africa, as also of suitable non-copyright photographs or snapshots of mining or engineering interest. Subject to special arrangement, the scale of remuneration for all articles inserted is at the rate of Two Guineas per page, and 5/- for every photograph. No responsibility can be accepted for safe transmission, but anything that may be submitted that is not accepted will be returned if a stamped and directed envelope is enclosed for the purpose.

Witbank Colliery, Limited.

(Incorporated in the Transvaal.)

Dividend No. 16.

NOTICE IS HEREBY GIVEN that a Dividend of Fifteen per cent. (15 per cent.) for the six months ending 28th February, 1913, equal to Three Shillings per share, has been declared payable to Shareholders registered on the 28th February, 1913. Dividend Warrants will be paid out as soon as practicable after the receipt of London Transfer Returns to that date.

The Transfer Registers of the Company will be closed from the 1st to the 8th March, 1913, both days inclusive.

By Order of the Board,

H. G. L. PANCHAUD,

Secretary.

Head Office,
Johannesburg,
14th February, 1913.

Automobile Notes.

The regulation of the pedestrian is progressing apace in Berlin. In addition to the police instructions to cross streets at right angles to the pavement, further drastic rules are proposed to be put in force as from the 13th April next. From these it appears that persons will not be allowed to walk more than three abreast, nor stop or congregate for any period of time. Persons will not be allowed to carry or swing umbrellas or walking sticks in a manner calculated to imperil the safety of passers-by. No windows or doors of houses, flats, shops, or restaurants in which music is being played may be kept open. No whistling, singing, shrieking, shouting or loud talking of any kind designed to interfere with the quiet of the streets shall be permitted. Teamsters in charge of wagons, vans, or truck loaded with resounding metal of any kind are forbidden to drive in a manner calculated to cause nerve-shattering noises. No paper, remains of fruit, cigars or cigarettes may be thrown into the streets. The dragging of clothes of any kind (women's dresses, etc.) or anything else capable of producing dust is prohibited. Householders are required in season to keep the footpaths in front of their premises clear of snow and ice between 7 a.m. and 8 p.m. After 10 p.m., in case sidewalks are dangerously icy, sand or ashes must be sprinkled. All this will sound amazingly revolutionary to the bulk of pedestrians, especially in British countries where changes are generally of slow growth, but the thoughtful citizen has already made up his mind that he must, with the rapidly changing conditions of vehicular traffic, adapt his habits to the times and submit to regulations designed for his safety and for the public convenience and comfort. In this connection some important evidence was given by Sir W. Nott Bower, the City Police Commissioner, before the Select Committee appointed by the House of Commons to consider and enquire into the increase in the number of street accidents in the city of London. Referring to the construction and use of subways in the course of his evidence he stated that, prior to the opening of the one at the Mansion House, there were sixty-four accidents at that point during the preceding twelve months. In the year following the opening the number fell to forty-one. Similarly during the three years preceding the opening of the subway at Blackfriars there were fifty-six accidents; while during the subsequent three years there were but twenty-five. That, he said, showed that the provision of subways had very materially influenced the safety of foot passengers, and no doubt it would still further increase their safety if they could be induced to use them more than they do.

* * * *

Speaking with regard to speed limits, Sir W. Nott Bower said that in 1904, with the small experience of motor traffic he then possessed, he thought that the regulation of speed might be desirable, though even then he had his doubts as to how far it would be possible to enforce the limit. Further experience had convinced him that a speed limit would be undesirable in the city. His reasons were, firstly, that it was inadvisable to create an offence which it would be impossible to prove, and he knew of no method by which the actual speed of any motor-car passing through a city

'FASTNUT'
WASHERS.

SIDE SECTION.

£1000

will be paid to anyone showing us a Nut that can get loose through vibration where the "FASTNUT" Washer is properly applied

The only guaranteed device for holding Nuts.

FASTNUT, Ltd., 115, Newgate St., LONDON, E.C.
Phone 12214 Central. Tel. Add.: 'FASNUT,' London.

Supplies can now be obtained at the Stores of the Sole Agents:

BLACKHURST & CO.,
Corner of President and Loveday Streets.
Box 375. JOHANNESBURG. 'Phone 251.

Between You and the Bumps.

Rough Roads call for the best of tyres, little use having a tyre fitted which will give long wear, if it won't smooth out the bumps in the road.

It is true that in all the big races Continental Tyres have been fitted on the winning cars, it is true that they have long life in use. But it is also true that they give this life at no expense to your car and personal comfort.

Resilience, the elasticity of a tyre, is a predominating feature of

CONTINENTAL TYRES.

Resiliency protects your car from jolts and jars, saving the mechanism and reducing cost of repairs.

Resiliency calls for quality of rubber, quality of fabric, quality of workmanship, all of which is found in Continental Tyres in more than generous proportion.

That is why, apart from reducing your tyre bill, Continental Tyres reduce your general repair bill.

It's worth thinking over. Why not specify Continentals on your Car?

street could at present be proved. Secondly, that he could not specify certain streets where the speed of vehicles should be limited to ten miles an hour. Except the Embankment, he knew of few streets where a speed of over eight miles was desirable. In many streets over five miles an hour was undesirable; also the streets where a low speed was not desirable were those where it was practically impossible to drive at anything like ten miles an hour. Thirdly, that a generally decreased speed must necessarily involve an increase of congestion, and experience showed that congestion was a more prolific cause of accidents than excessive speed; and, fourthly, that many drivers would almost certainly consider that they were entitled to travel up to ten miles an hour, if that limit were fixed. For those reasons he considered it better to rely on the section of the Act which dealt with driving to the public danger, and on similar provisions. Very weighty and convincing reasons, these, coming as they do from a highly responsible guardian of the public safety, impelled to his conclusions by the irresistible argument of the closest practical experience.

City Deep.

The following is the report for the quarter ending December, 1912:—

Revenue, £230,346, or £1 17s. 3d. per ton from 123,800 tons milled; cost, £149,457, or £1 4s. 2d. per ton; profit, £80,889, or 13s. 1d. per ton. Development operations were temporarily curtailed during the quarter, owing to the number of natives being insufficient for both stoping and developing. It is, however, satisfactory to be able to record that there has been a substantial improvement in this respect since the end of the quarter. No estimate is given of the payable tonnage developed for the half-year, as the annual report, to be issued in April, will state this information for the whole year, together with particulars of the ore reserves on hand. The Main Reef leader exposures continue most satisfactory; the average over the total footage on reef for the period was 589 inch dwts. (i.e., the average width in inches multiplied by the average value in dwts.). No. 2 incline was advanced 141 feet, and is now 84 feet below the horizon of the 10th level. Connection was made on the 9th level, between the vertical shafts, several blocks of high-grade ore being rendered available for stoping. The 2nd level cross-cut, north from No. 2 vertical, was advanced 346 feet, and Main Reef leader was encountered early in January, assaying 181.8 dwts. over 7 inches. The intersection of reef in this cross-cut marks an important point in connection with the development of the large tonnage situated between the present ore reserves and the north boundry. Expenditure on capital account for the quarter was:—Property (being the acquisition of Regent's Park Township and the cost of property in connection with the housing scheme for employees), £5,096; less development and equipment, £27—£5,069. The balance to be expended on authorised votes amounts to £18,026. It is expected that more housing accommodation will shortly be required for white and coloured employees. Attack on Titles.—The appeal against the judgment given in the action taken by the Federation Co. v. Bezuidenhout and others—our predecessors in title—set down for hearing on November 28 last, has not yet been given. Consequently the action instituted against this company has not been heard.

Dunlop Repair Shop

SEND YOUR TYRES FOR REPAIR OR RETREADING

TO THE

MANUFACTURERS.

DUNLOP GROOVED TREADS (manufactured in our English Factory) Fitted to any make of cover.

Burst Covers and Tubes properly repaired.

Call and inspect samples of our work.

Dunlop Repair Works,

83, BREE ST.,

P.O. Box 6370. JOHANNESBURG.

'Phone 831.

The South African Railways and Harbours have accepted the following tenders:—Soft soap: Tender received through the High Commissioner, London, £16 per ton of 2,240 lb., £16 15s. per ton of 2,240 lb.; £17 per ton of 2,240 lb.; £17 9s. per ton of 2,240 lb.; the Union Chemical Co., Ltd., Johannesburg, £20 16s. 8d. per ton of 2,240 lb. Hard yellow soap: Lever Bros. (S.A.), Ltd., Durban, 24s. 9d. per 100 lb.; New Transvaal Chemical Co., Ltd., Delmore, 29s. 9d. per 100 lb.; Union Soap Works Co., Ltd., Pretoria, 30s. per 100 lb. Tallow: Imperial Cold Storage and Supply Co., Ltd., Capetown, including cost of casks 31s. 3d. per 100 lb., not including cost of casks 30s. per 100 lb.; Hannam and Co., Johannesburg, including cost of casks 35s. per 100 lb., not including cost of casks 34s. 4d. per 100 lb.; Hannam and Co., Johannesburg, including cost of casks 35s. 6d. per 100 lb., not including cost of casks 34s. 10d. per 100 lb. Candles: Patlansky Bros. and Schauder, Port Elizabeth, 3s. 9d. per dozen packets; K. Gundelfinger, Durban, 3s. 8d. per dozen packets; P. Gillespie and Co., Johannesburg, various. Galvanised steel sheets: Wolverhampton Corrugated Iron Co., Ltd., Cheshire, various; J. Summers and Sons, Chester, various; S. Sykes and Co., Johannesburg, Telegraph Manufacturing Co., Johannesburg, various.

BOEKER — STEEL

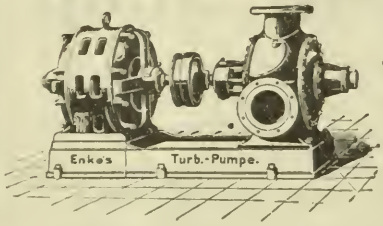
IN ALL QUALITIES AND FOR EVERY PURPOSE.

H. H. BOEKER & CO., REMSCHEID --- GERMANY.

AGENTS WANTED.

ENKE'S PATENTED TURBINE PUMPS

FOR LOW AND HIGH PRESSURE.



EFFICIENCY UP TO MORE THAN 80 PER CENT.

WITH LATEST IMPROVEMENTS.

DELIVERED FOR LIFTS UP TO 1,650 FEET.

CHIEF ADVANTAGES :

1. The axial Pressure is perfectly and automatically balanced.
2. The chambers are placed into a solid casing and tightened against each other automatically by the water-pressure existing in the pumps.
3. The stages can easily be taken out and mounted again on account o a special construction, as a rusting in whatever a.s.o. is quite impossible.
4. Both branches are integral parts of the casing and are not placed on the side-covers so that it is not necessary to screw off the piping when the pump should be opened.
5. The bearings have ring-lubrication and adjust themselves exactly according to the shaft so that a running hot never happens, even at highest speeds.
6. The efficiency is the highest that can ever be reached and comes according to delivery and lift up to more than 80 per cent.

BAERECKE & KLEUDGEN, Johannesburg,
General Agents for Carl Enke, Schkeuditz (Germany) 61

3

FACTS REGARDING THE

TRANSVAAL

WORTH REMEMBERING.

1. The **TRANSVAAL** is producing over one-third of the World's Gold Output.
2. **TRANSVAAL** Mines have spent 24 millions sterling on machinery and plant.
3. The **"South African Mining Journal"** is the **Official Organ** of the **Mine Manager's Association.**

ACETYLENE

Complete Cutting and Welding Plants.

ALL ACCESSORIES FOR SAME.

OXYGEN in Large Quantities kept in Stock.

MINING LAMPS. J.L.S. L.O.R. Lamps. Bucket Lamps. Famous J.L.S. No. 3 and No. 5.

CALCIUM CARBIDE. Estimates for Complete Lighting Installations given.

8, HARRISON STREET.

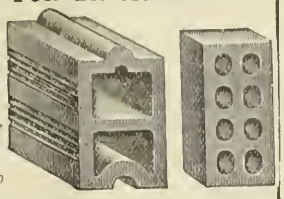
P.O. Box 2045

'Phone 2707. 'Phone 3652 (Private).

J. L. SCHOELER.

TURBINES MACHINES FOR BRICKMAKING.

OFFERED BY
Act. Ges. vorm
A. Kuhnert
& Co.,
Meissen, Saxony
(*Germany*).
Assets approximately £60,000



AGENTS WANTED. CATALOGUES ON DEMAND.

Double Helical Gears

CUT DIRECT FROM THE SOLID WITH CONTINUOUS TEETH.

Local Representatives—
BELLAMY & LAMBIE, Consolidated Building
P.O. Box 453, Johannesburg.

See Last Week's Advt.

ON ADMIRALTY LIST.
IMPROVED BOURDON GAUGES.
BUCHANAN PATENT COUNTERS.
IMPROVED ENGINE INDICATORS.
HANNAN & BUCHANAN,
75, Robertson Street, GLASGOW, Scot.

Specimen copies of the *South African Mining Journal* can be had from our offices at 125, Salisbury House, London Wall, E.C.

STUART D. WEBB,

Consulting Agriculturist.

ADVICE TO BUYERS AND TO FARMERS.

¶ BEFORE purchasing a farm see that you get sound advice as to the value and capabilities of the soil—get advice as to what particular class of crops the ground can produce and the necessary kind of machinery to use—and what kind of stock to breed.

¶ Advice given on the purchase and lay out of farms, fertilisers, ensilage, dipping tanks; also construction of farm buildings and conservation of water.

¶ Farms reported on in every branch of agriculture and valued.

CONSULTING OFFICES:
Nos. 123--124 (3rd Floor),
Exploration Buildings,
Telephone 913. P.O. Box 963. JOHANNESBURG.
Telegraphic Address: "CLEMATIS."

THE
BOWSER OIL STORAGE
AND
FILTER SYSTEM.

Use plenty of oil and you will save your machinery.
Store your oil in BOWSER tanks and you will save your oil.
If you don't agree with that kind of logic, I would refer you to some of the following users of this system:—

EAST RAND PROPRIETARY MINES
ROSE DEEP
GLEN DEEP
SIMMER & JACK
SIMMER DEEP
GELDENHUIS DEEP
JUMPERS DEEP
NOURSE MINES
WOLHUTER
CINDERELLA DEEP
CITY & SUBURBAN
VILLAGE DEEP
NIGEL
CROWN MINES

If you can't trust any of these look out for the next list.

W. L. REEDER,

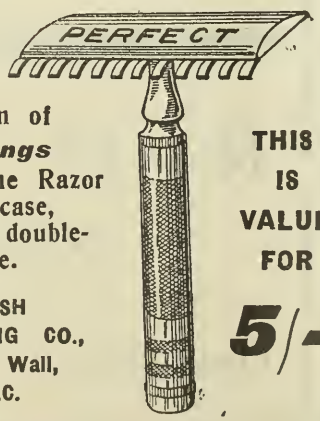
SOLE AGENT FOR SOUTH AFRICA,
133, CULLINAN BUILDING.
BOX 643. **JOHANNESBURG.** 'PHONE 4012.

5/-

Ladies' and Gent.'s
LEVER WATCHES.

Don't delay, send at once for our World-Famous Watch, sent carriage paid for **5/-**

THE RAZOR OF RAZORS.



For the sum of
Five Shillings
we will send the Razor complete in case, with an extra double-edged blade.

THE BRITISH MANUFACTURING CO.,
119/120, London Wall,
LONDON, E.C.

THIS IS VALUE FOR **5/-**

YOU NEED NOT HESITATE!

QUALITY is our Hall Mark.

Let us Quote You for Your Supplies of

SHOVELS, PICKS, WHEELBARROWS,

COTTON WASTE, PIG IRON, ETC., ETC.

WE UNDERTAKE LOCAL MANUFACTURE OF EVERY DESCRIPTION OF STEEL CONSTRUCTIONAL WORK.

WE ARE EXPERTS IN WATER BORING.

BOREHOLES FOR SAND FILLING.
A SPECIALITY.

R. G. CAMPBELL PITT,

83-88, Cullinan Buildings,
JOHANNESBURG.

Phone 1731. Box 4559.

THE "S. A. MINING JOURNAL"

Mining Machinery and Material Directory

and List of Professional Men Engineers, Assayers, etc., practising in various parts of South Africa, Shipping and Forwarding Agents, Company Notices and Reports, and Miscellaneous Advertisements.

PAGE.

A

Aerial Ropeways 812
Air Compressors ..... viii.

B

Ball Mills ..... iii.
Belting ..... vi., vii., 812
Boiler Mountings ..... 3rd Cover
Boring 820
Brickmaking Machinery 819
Bridges ..... iv.

C

Carbide 818
Cement Plants ..... iii.
Cement, Portland 813
Chains ..... vii.
Company Notices 815
Compressors, Air ..... viii.
Concentrating Machinery ..... viii.
Constructional Iron and Steel Work ..... iv., 820, 3rd Cover
Conveying Machinery 812
Counters 819
Copper, Bronze, etc. ..... vii.
Cotton Waste 820
Crushers, Gyratory ..... iii.
Cyanide Vats ..... iv.
Cylinders, Brass ..... 3rd Cover

D

Drawing Instruments ..... Back of Index
Drill Sharpeners ..... 2nd Cover
Drills, Rock ..... 3rd Cover

E

Electrical Machinery 812
Electrical Supplies ..... iv.
Elevating Machinery 812
Engines, Electric ..... viii.
Engines, Gas ..... iii., 812
Engines, Oil and Petrol ..... v., 3rd Cover
Engines, Steam ..... viii.
Engineering Works ..... vii.

F

Filter Presses ..... ii.
Forwarding Agents ..... iv.
Foundries ..... vii.

G

Gas Plants ..... iii.
Gauges 819
Gears, Double Helical 819
Girders ..... iv.

H

Headgear Sheaves 814
Headgears, Steel ..... iv.
Hooks, Safety Detaching 814
Hose ..... vii.

I

Indicators, Engine ..... vii.

PAGE.

L

Lamps, Mining 818
Levels ..... Back of Index
Locomotives, Electric ..... v., 812, 817

M

Mechanical Machinery 812
Metal Cutting, Oxy-Acetylene Process ..... vii., 818
Mill Spares 812
Miners' Lamps ..... Back of Index
Motor-Cars and Accessories 816, 817
Motors, Electric 812

O

Oil Storage and Filter System 819
Oils, Graphite, for all purposes ..... 1st Cover
Overwinders, Patent ..... 4th Cover
Oxygen 818

P

Packing ..... vii.
Paint, Graphite ..... 1st Cover
Paints ..... vi., 1st Cover
Paste, Graphite ..... 1st Cover
Picks 820
Pig Iron 820
Pipe Threading Tools ..... vi.
Powder, Graphite ..... 1st Cover
Power Heads ..... 3rd Cover
Printers and Stationers ..... vii.
Professional Directory ..... iv., 810, 815, 819
Pulleys 814
Pumps, Centrifugal ..... 808, 3rd Cover
Pumps, Steam ..... vi.
Pumps, Turbine 808, 818

R

Rails and Accessories ..... v., 817
Recording Thermometers ..... Back of Index
Ropes, Cotton Driving ..... Back of Index
Ropes, Winding 812

S

Sheaves 814
Shipping Companies ..... ii., v.
Shovels 820
Situations Wanted 811
Stamp Mills ..... viii.
Steel for all purposes ..... v., 817
Steel, Perforated ..... vii.
Surveying Instruments ..... Back of Index

T

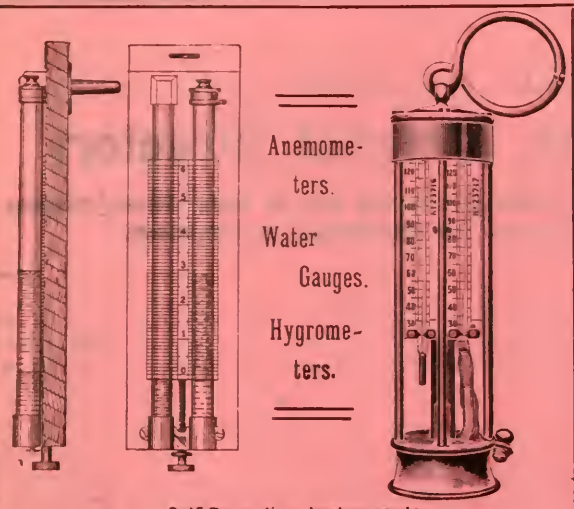
Theodolites ..... Back of Index
Thermometers ..... Back of Index
Torches, Fuse Lighting ..... Back of Index
Tube Mills ..... iii.
Tubes and Fittings ..... 1st and 3rd Covers
Turbines 819

V

Valves and Fittings ..... viii., 3rd Cover

W

Wagons, Mine ..... v., 817
Washers, Fastnut 816
Welding, Oxy-Acetylene ..... vii., 818
Wheelbarrows 820
Woodworking Machinery ..... viii.



Anemometers.
Water Gauges.
Hygrometers.

Self-Recording Instruments.

JOHN DAVIS & SON (DERBY) LTD.

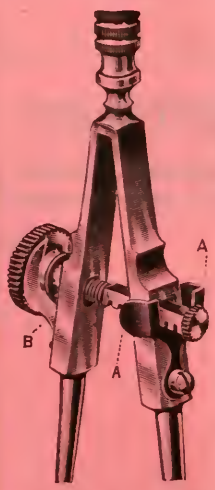
DERBY, ENGLAND.

SOLE AGENTS:

For Transvaal:
Bartle & Co., Ltd., Johannesburg.

For Natal:
Hubert Davies & Co, Durban.

For Rhodesia:
Johnson & Fletcher, Bulawayo.



THORNTON
PATENT
Rapid Adjustment
FOR THE
SPRING BOW.

A Practical and Useful addition.

Reduces the Wear on the Nut and Bolt to a Minimum.

Having an Instant Adjustment is a Great Time Saver.

Send for descriptive Circular, also Illustrated Catalogue of Drawing and Surveying Instruments; 320 pages, 500 illustrations; the largest and most comprehensive Catalogue in the trade.

A. G. Thornton, Ltd.,

Practical Manufacturers,

Contractors to the British, Indian, Australian, South African, Egyptian, Spanish and Chinese Governments,

PARAGON WORKS, 25 KING STREET, WEST, MANCHESTER, ENG.

ROPE DRIVING

FOR EFFICIENCY & DURABILITY, USE

Sole Agents for S. Africa:
Blane & Co. Ltd.,
Central House,
Johannesburg.
Box 435. Telephone 3878.

Epitome of Lectures on the Transmission of Power by Ropes Post Free on application.

WM. KENYON & SONS, LIMITED,
Chapel Field Works, DUKINFIELD,
near Manchester.

A BOON TO THE RAND.

- - THE - -

Benoni Tshisa Stick.

The following Analysis by Mr. James Gray, F.I.C., speaks for itself:—

"This is to certify that the following is the result of Analysis of the sample of 'Benoni Tshisa Stick' submitted on date 28th January, 1913.

The analysis of the fumes obtained on burning this 'Tshisa' stick show that the nitric oxides produced are almost negligible, amounting to 0·46 per cent., and therefore this stick should prove most satisfactory for the purpose required."

Note Address:—
P.O. Box 376, BENONI.
Telephone 221, BENONI.
Tel. Add.: "TSHISA."

ECONOMIC AIR DRILLS.

THE "CLIMAX."

May we assume that

AIR CONSUMPTION PER FOOT BORED

interests you, and **not** so much air consumed per minute, irrespective of work done ?

It is a matter of **Cause** and **Effect** : If you use a given quantity of air in a well-constructed Drill, you get the effect in inches drilled ; it is also equally true that if you **unduly cut down** the air consumption, the good effect is lost, and you do not get the same number of inches drilled.

Have you seen our range of light, all steel, Stope Drills ?

Viz :— 3″ Cylinder diameter, 180 lbs. weight.
2¾″ „ „ 175 „ „
2½″ „ „ 165 „ „

All of these are **very fast drilling machines**, and we guarantee the **air consumption for inches drilled** is equal to the best, and that being **all steel** they cost from **20% to 50% less in maintenance charges** than any other drills upon the market. We will give you **FREE TRIALS** to prove this.

MAKE ENQUIRIES ! The above Machines are doing good work in the African mines.

Proprietors, Makers and Patentees :
R. STEPHENS & SON,
CARN BREA, CORNWALL, ENGLAND.

Local Agents :
WM. HOSKEN & CO.,
P.O. Box 667, JOHANNESBURG.

STEWARTS AND LLOYDS (South Africa), LTD.

(Incorporated in Great Britain)

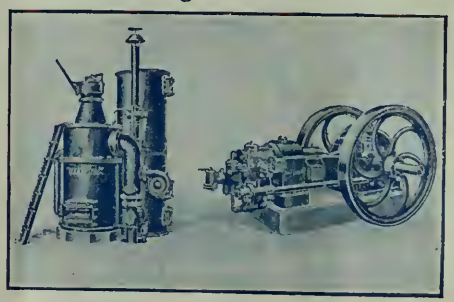
L&L TUBES & FITTINGS. L&L

Electrically Welded Steam Joints *a Speciality.*

All Classes Flanged and Screwed Joints.

VALVES.

Hopkinson's Steam Valve and Boiler Mountings.
Glenfield & Kennedy's Sluice and Hydraulic Valves and Specialities.
Butterfield Cocks.
Masters Valves, Etc., Etc.



CONSTRUCTION WORK.

We are in the position to Quote for all Classes of TUBULAR CONSTRUCTION WORK.

ENGINES AND PUMPS.

"National" Gas, Oil and Petrol Engines.
"Mather & Platts" High and Low Lift Centrifugal Pumps.

"Climax" Brass Cylinders and Power Heads. Etc., Etc.

Box 1195. 'Phones 3885, 3886, 3887, 3888, Johannesburg. Tel. Add., "Tubes."

WHITMORE PATENT OVERWINDER

AND OVERSPEED PREVENTION GEAR.

As applied to
ALL CLASSES
of
WINDING
ENGINES,
gives
MECHANICAL
SECURITY
against
OVERWINDING
and
OVERSPEED.

If the driver makes
a mistake
the
WHITMORE
OVERWINDER
closes the throttle and
applies the brakes
for him,
but
he still has
FULL
CONTROL.

Write or Phone for SPECIAL DESCRIPTIVE PAMPHLET.

FRASER & CHALMERS, LTD.

(INCORPORATED IN ENGLAND.)

Fifth Floor.——The Corner House.

JOHANNESBURG.

Box 619. **Telegrams: "VANNER."** **Telephone: PRIVATE EXCHANGE.**

Printed for the South African Mining Journal Syndicate, Limited, by the Argus Printing and Publishing Company, Limited, Lower President Street, and Published by the Syndicate. Obtainable at all Branches and Agencies of the Central News Agency, Limited, and all News Agents and Railway Bookstalls throughout South Africa.